

Stormwater Management Report

Westminster School

Track & Field Renovations

Simsbury, Connecticut



Submitted by:
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Project # 21263
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TABLE OF CONTENTS

1 - PROJECT NARRATIVE	2
2 - STORMWATER ANALYSIS	3
3 - STORMWATER COMPLIANCE	4
4 - CONCLUSIONS	7
5 - REFERENCES	7

APPENDICES

- Appendix A – Pre-Development Conditions Analysis & Watershed Plan
- Appendix B – Post-Development Conditions Analysis & Watershed Plan
- Appendix C – Town of Simsbury Site Planning and Design Criteria Checklist
- Appendix D – Stormwater Facilities- Operation, Inspection, and Maintenance Plan

1 - PROJECT NARRATIVE

Introduction

The existing equal quadrant running track was constructed approximately 20-25 years ago and needs repair/renovation. Since the construction of the track, Westminster has eliminated its football program, and the field's narrow width (straightaways and arcs are each 100m long) precludes use by many other sports. Currently the natural grass field is lined for soccer, playing only at 195' in width. The project is to replace the existing track, reconstruct the field within the track with a different surface and provide minor site improvements to support the track use/operations.

The School went through a concept study phase to determine impacts of field widths on track layout and overall site impacts. Based on those studies, the school selected a field dimension larger than the existing field though less than maximum size allowed by current athletic rules in an effort to balance the impact to the site with the increased playability for sports.

The general location and orientation of the existing track and field is to remain unchanged, but modifications will be required to meet the program needs of the facility. No new programs will be created.

Project Location

The Westminster School campus is approximately 182 acres. The project site is located towards the highest point of campus. The site slopes significantly down to the east of the track. The track is surrounded to the south, west, and north by other athletic fields. The slope is relatively flat to the north and south of the track, with a slight slope up to the west.

Existing Soils Conditions

Based on the previous athletic improvements on campus, the soils on campus have typically been classified as Hydrologic Soils Group A:

- Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Based on the previous drainage report, an infiltration rate of 2 in/hr was used to size the existing infiltration units. Over the last 20 years, no issues with the existing structures have been noted, so the design team will use this same infiltration rate to size the additional infiltration structures that will be required to manage the additional impervious area proposed.

Methodology and Modeling Assumptions

Runoff and routing calculations have been performed for the watershed areas impacted by the project in both the pre-development and post-development conditions using HydroCAD© software. The time of concentration and runoff curve number calculations have been determined using the method described in NRCS Technical Release 55 – Urban Hydrology for Small Watersheds (TR-55). Time of concentration calculations have been amended where the value given by the TR-55 method is less than five minutes. In these cases a standard minimum value of five minutes has been used to keep this parameter within the acceptable working range of the model.

Design rainfall events have been modeled using the SCS Type III hydrograph for 24-hour duration storms. The rainfall depth for each return period is taken from the 2004 Connecticut Stormwater Quality Manual. The rainfall depth values for standard design storm frequencies are given in the table below.

24-Hour Rainfall Depths for Hartford County, Connecticut at Design Storm Frequencies				
<i>2004 Connecticut Stormwater Quality Manual</i>				
Frequency	2-Year	10-Year	25-Year	100-Year
Rainfall Depth(in)	3.2	4.7	5.5	6.9

2 - STORMWATER ANALYSIS

2.1 Pre-Development Conditions

The pre-development condition has been analyzed based on two (2) design points.

- Design Point 1 (DP-1) is the slope to the east of the existing track. The two outlets from the existing infiltration systems outlet along this slope.
- Design Point 2 (DP-2) is the area to the west of the track where stormwater is collected and infiltrated by several yard drains and subsurface infiltration units.

The pre-development conditions analysis has been broken out into four (4) subcatchment areas:

- SC-101A includes the existing natural grass playing field located within the track. This area has been broken into two areas: SC-101A-1 includes the north portion which flows to the existing subsurface infiltration system (I-1) and SC-101A-2 includes the south portion which flows to the existing subsurface infiltration system (I-2). The majority of the runoff infiltrates directly into the subsoils, and any overflow outlets to the two 6" pipes along the east slope.
- SC-101B includes the existing track. Similar to the field, this area is broken into two areas with runoff from SC-101B-1 flowing to I-1 and SC-101B-2 flowing to I-2. The majority of the runoff infiltrates directly into the subsoils, and any overflow outlets to the two 6" pipes along the east slope
- SC-101C includes the lawn area to the east of the track. This area flows overland down the slope to the east.
- SC-102A includes the existing runways and lawn area to the west of the track. This area drains to a series of yard drains/drywells where the runoff is 100% infiltrated.

Detailed descriptions of the subcatchment areas can be found in the HydroCAD runoff reports and on the pre-development watershed plan. Please refer to Appendix A for HydroCAD report and Sheet C-120 Pre-Development Watershed Map.

2.2 Post-Development Conditions

The same total drainage area and design points were analyzed in the post-development condition. The nature and use of the project area is not changing greatly from the pre-development condition. The project proposes to reconstruct the existing track and convert the natural grass to synthetic turf. A small new storage garage and replacement of the existing filming platform is also proposed.

Approximately 22,583 sf (0.52 acres) of new impervious surfacing is proposed as part of the athletic improvements:

- 16,747 sf of additional area of running track
- 5,735 sf of new concrete sidewalk/pavement
- 101 sf of additional building area/filming platform

There will be no vehicular use aside from the minimal use of maintenance equipment, so there is no concern of oil spills or other hazardous materials typical of parking lots/driveways.

The synthetic turf field is included in the model as Direct Entry (CN 98) since there is no depression storage, or evapotranspiration loss of rainfall that lands on the structure. Rainfall will drain directly through the surface of the field to the underlying base layer of highly porous crushed stone. The stone base will act as a large storage reservoir, detaining rainfall that enters the structure, before allowing it to infiltrate to underlying soils. It should be noted that the stone layer extends 6 inches beneath the field underdrain piping, providing significant storage/infiltration volume prior to *any* stormwater discharging to the piped drainage system. The stone base layer is modeled as a pond with 33% voids. The underdrains are modeled as multiple vertical orifices that discharge to the larger collector pipes that collect and convey stormwater around the perimeter of the proposed turf field.

The post-development conditions analysis has been broken out into four (4) subcatchment areas:

- SC201A includes the synthetic turf field. As described above, runoff flows vertically through the field surface into the stone base below. The majority of the runoff will infiltrate directly into the subgrade, and any excess runoff will be collected by the panel drains and directed to the outlet on the east slope.
- SC201B includes the expanded track area. This area is further subdivided into three areas. The north portion flows to I-1 and the south area flows to I-2 as in the existing condition. The west side of the track is directed to the new subsurface infiltration gallery (SIG-1). Any runoff that does not infiltrate will outlet to the east slope.
- SC201C is similar to the pre-development condition and includes the lawn area to the east of the track. Runoff flows overland down the slope to the east.
- SC202A is also similar to the pre-development condition and is collected by the existing yard drains/drywells where the runoff is infiltrated.

Detailed descriptions of the subcatchment areas can be found in the HydroCAD runoff reports and on the post-development watershed plan. Please refer to Appendix B for HydroCAD report and Sheet C-121 Post-Development Watershed Map.

3 - STORMWATER COMPLIANCE

For ease of the Town's review, the design team has mirrored the format of this section with Section 1.2 "Performance Standards" of the Simsbury Stormwater Article.

1.2A: Planning and Site Design Criteria Checklist

- The completed Town of Simsbury Site Planning and Design Criteria Checklist is included in Appendix C of this report.

1.2B: Stormwater Quantity and Quality Requirements

- **1- Redevelopment** - Not Applicable
- **2- Peak Rate**
 - *Post-development peak rate of runoff not to exceed the pre-development peak rate of runoff for the 2-, 10-, 25-, and 100-year, 24-hour design storm events.*
 - The runoff and routing analysis described in Section 2 show that there will be no increase in peak runoff at DP-1 or DP-2 at the 2-year, 10-year, 25-year, and 100-year design storms.

Peak Flow Rate (cfs)						
	DP-1			DP-2		
Rainfall Event	Pre	Post	Δ	Pre	Post	Δ
2-year	0.10	0.02	-0.08	0.01	0.00	-0.01
10-year	0.57	0.48	-0.09	0.13	0.01	-0.12
25-year	1.83	1.02	-0.81	0.33	0.05	-0.28
100-year	3.49	3.43	-0.06	0.90	0.20	-0.70

- For information, the runoff volume comparison is provided below for the 2-year, 10-year, 25-year and 100-year storms.

Runoff Volume (ac-ft)						
	DP-1			DP-2		
Rainfall Event	Pre	Post	Δ	Pre	Post	Δ
2-year	0.006	0.003	-0.003	0.004	0.000	-0.004
10-year	0.046	0.042	-0.004	0.025	0.006	-0.019
25-year	0.105	0.095	-0.010	0.042	0.012	-0.030
100-year	0.257	0.221	-0.036	0.080	0.026	-0.054

- 3- Recharge Volume**

- Since the project is not located with the Simsbury Center and the Site BMP Incentive Credits are not applicable to this project, the Recharge Volume calculation from the 2004 Connecticut Stormwater Manual was used.
- Required Groundwater Recharge Volume Calculation:

$$WQV = (D \cdot A \cdot I) / 12$$

Where D=Depth of runoff to be recharged
A=Site Area (acres)
I=Post development site imperviousness (decimal)

D= 0.60 in
Area= 4.419 ac
Imp= 0.3662

The project area is located entirely in A soils.

GRV= 0.081 ac-ft
3,525 cf

- The Groundwater Recharge Volume (3,525 cf) is treated by the subsurface infiltration galley (SIG-1).

- 4- Water Quality**

- The development shall treat stormwater runoff to achieve the following minimum pollutant removal requirements at each discharge point based on the Water Quality Volume as defined below:
 - 80% total suspended solids (TSS)
 - 40% removal of total phosphorus (TP)
 - 30% removal of total nitrogen (TN)
- Since the project is not located with the Simsbury Center and the Site BMP Incentive Credits are not applicable to this project, the Water Quality Volume calculation from the 2004 Connecticut Stormwater Manual was used.

- Required Water Quality Volume Calculation:

$$WQV = (1" \times R \times A)/12 \quad \text{Where: } A = \text{Area}$$

$$R = 0.05 + 0.009I$$

$$I = \% \text{ Impervious}$$

Area = 4.419 ac
 % Imp. = 36.62
 R = 0.38
WQV = 0.139 ac-ft
6,066 cf

- The overall area used above was the total subcatchment area of the project site. The impervious area includes the new track surfacing, concrete sidewalks, filming platform, and small garage. As noted previously, the impervious areas proposed are not for vehicular use. So apart from the occasional use of maintenance equipment, there is minimal concern of oil spills or other hazardous materials typical of parking lots/driveways.
- The two existing infiltration systems and the new subsurface infiltration galley (SIG-1) are able to provide more storage volume than required for the Water Quality Volume.

<u>Gallery Identification</u>	<u>Units</u>	<u>Storage Provided</u>
New Infiltration System (SIG-1)	(182) SC-310 StormTech Chambers	4,948 cf
Ex. North Infiltration Units (I-1)	(81) Infiltrator Units	2,061 cf
Ex. South Infiltration Units (I-2)	(214) Infiltrator Units	5,355 cf
TOTAL STORAGE PROVIDED		12,364 cf

- Subsurface Infiltration Gallery (SIG-1) is detailed on CG501. Additional information regarding SIG-1 can also be found in the Post-Dev HydroCAD report.
- Information regarding the previously installed Infiltrator Units is included in this report for reference. The StormTech SC-310 Chambers were used for modeling the existing two systems since the dimensions and capacity are very similar.

- Pollutant Removal

- While the synthetic turf field section is not a formal stormwater BMP, the stone section acts similar to a sand filter. Similar pollutant removals are to be expected from the runoff that flows through the turf section. Based on the Table 1.3 in the Simsbury Stormwater Article, a sand filter provides: 86% TSS removal, 59% TP removal, and 32% TN removal. These values meet the Section 1.2.B.4 Water Quality requirement.

• **5- Conveyance**

- *Drainage conveyance systems must be designed to provide adequate passage for at least the 25-year, 24-hour design storm event. Emergency outlets must safely pass the post-development peak runoff from the 100-year design storm event.*
 - The proposed improvements (Subsurface Infiltration Gallery, SIG-1) is designed to handle the 25-year and 100-year design storm events.

• **6- Offsite Mitigation and Stormwater Mitigation Bank - Not Applicable**

• **7- Site BMP Incentive Credits - Not Applicable**

1.2C: Design and Construction Requirements

- **BMP Requirements**

No formal water quality treatment BMPs are proposed for this project. However, in an effort to further promote infiltration and provide peak flow attenuation, the existing and new infiltration chambers are adequately sized to handle the Recharge Volume and the Water Quality Volume.

- The stone base under the synthetic turf field will act as a large storage reservoir, detaining rainfall that enters the field, before allowing it to infiltrate to underlying soils. The field acts in a similar fashion to a filtering treatment system, so similar pollutant removals will occur.
- **Irrigation** - Not Applicable
- **Special Detention Areas** - Not Applicable

1.3: Maintenance

- An Operation, Inspection, and Maintenance Plan have been provided in Appendix D of this report.

1.4: Illicit Discharges and Connections

- There will be not illicit or illegal discharges or connections from the project site.

4 - CONCLUSIONS

The runoff and routing calculations demonstrate that the development will decrease the peak runoff from the site during design storm events of, 2-year, 10-year, 25-year and 100-year return periods. The installation of the subsurface infiltration galleries (SIG-1) as well as the existing infiltration units will treat the water quality volume and the recharge volume.

Based on this analysis, the project site will not negatively impact the downstream watersheds and meets the requirements of the Simsbury Stormwater Article.

5 - REFERENCES

- Simsbury Stormwater Article (Revision-2: September 28, 2011)
- CT Stormwater Manual (2004 and as amended)
- Connecticut Guidelines for Soil Erosion and Sediment Control (2002)
- NRCS Technical Release 378
- NRCS Web Soil Survey

Appendix A

Pre-Development Conditions Analysis & Watershed Plan

Appendix B

Post-Development Conditions Analysis & Watershed Plan

Appendix C

Town of Simsbury Site Planning and Design Criteria Checklist

Appendix D

Stormwater Facilities- Operation, Inspection, and Maintenance Plan

Conformance with the following criteria shall be initialed in the spaces provided by a registered Connecticut Professional Engineer. If site conditions partially or completely prevent implementation of any specific criteria, documentation demonstrating technical infeasibility must be provided.

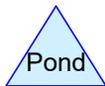
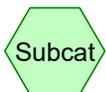
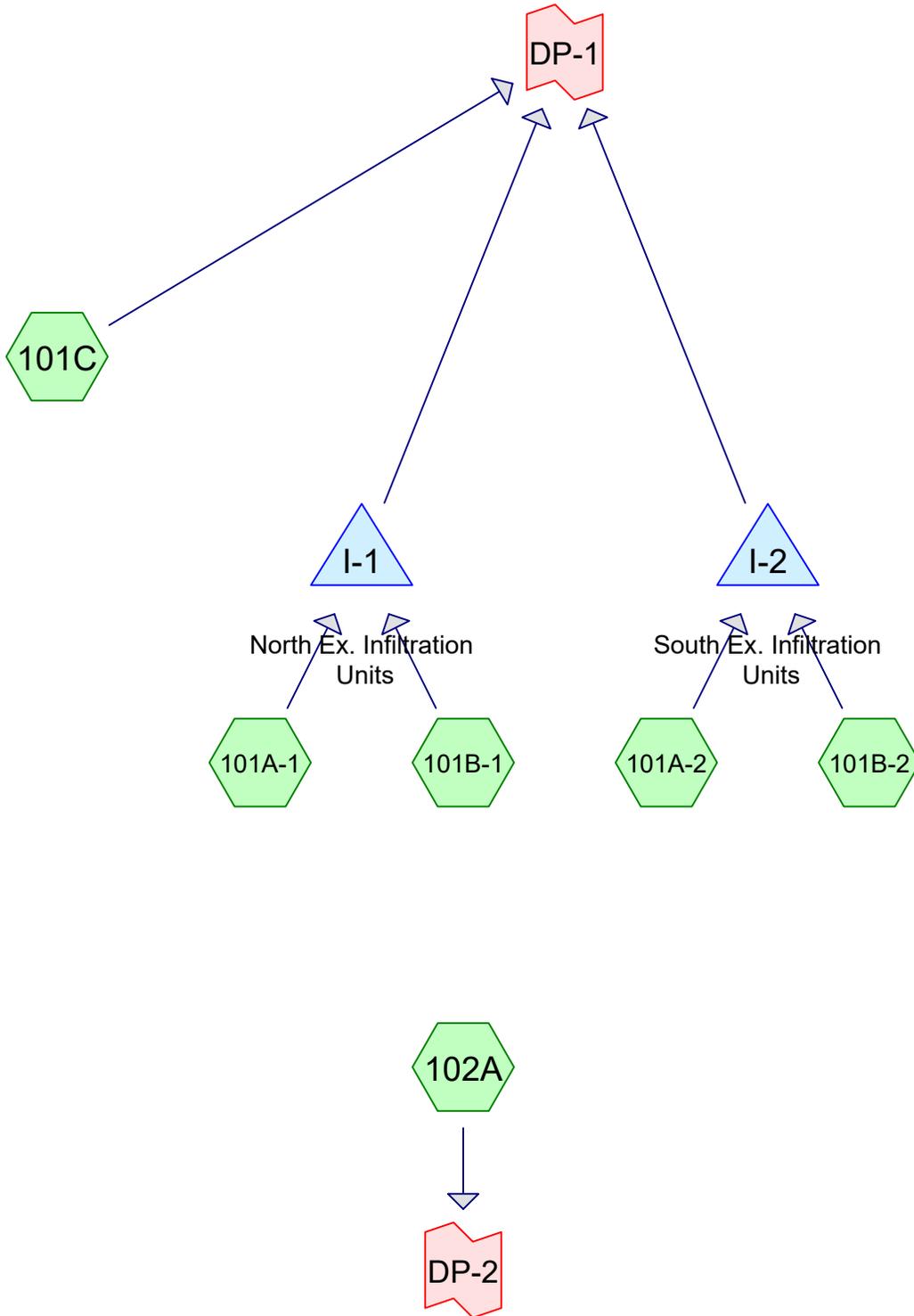
	Item #	Description	Verified	Technically Infeasible	Not Applicable
Watershed	1.1	Development avoids sensitive natural resource areas and their buffers, including but not limited to: designated natural resource protection areas, riverfront buffers, steep slopes, wildlife habitats, and forests.	X		
	1.2	Development and redevelopment is within Simsbury Center or other areas designated to be compact and walkable, including developments utilizing the Simsbury Center Code, Planned Area Development Designation, or other cluster development designs, or other compact and walkable areas as determined by Town Staff in order to concentrate development and minimize total impervious area in the watershed.			X
	1.3	Public open space and recreation areas are designed as Special Detention Areas per Stormwater Article Section 1.2C to provide both public use and neighborhood-scale stormwater mitigation.			X
	1.4	Neighborhood planning within Simsbury Center follows the general principles established in the Simsbury Center Watershed Planning and Design Framework.			X
Neighborhood	2.1	An existing conditions plan is provided documenting sensitive natural resources including existing wetlands, streams, ponds, vernal pools, flood zones, soil types and infiltration rates, steep slopes, treelines and trees 12" caliper and greater, septic tanks and fields, and natural topography.	X		
	2.2	Using the existing conditions plan as a guide, development is located to maximize preservation of contiguous natural sensitive areas.	X		

	Item #	Description	Verified	Technically Infeasible	Not Applicable
Neighborhood (continued)	2.3	Using the existing conditions plan as a guide, development and stormwater management systems are located such that centralized volume mitigation and flood control such as detention/retention basins, if required, is located towards the edges of compact development areas or in adjacent open space.	X		
	2.4	Community open space is sited in areas of well-draining soils, located in coordination with topography to receive stormwater runoff from new development, and designed as a Special Detention Area per Section 1.1.2C to provide neighborhood-scale stormwater infiltration and flood control.			X
	2.5	Existing stands of mature trees are incorporated into the neighborhood and site design and preserved to the maximum extent practicable. Tree protection provisions are submitted as required by Landscaping Section 9.02.			X
	2.6	Development is alley-loaded and/or incorporates parking lots sited behind buildings.			X
	2.7	The neighborhood parking approach incorporates shared parking strategies, on-street parking, and centralized structured parking to minimize new impervious area.			X
Green Streets	3.1	New thoroughfares and retrofit of existing thoroughfares meet Section 1.2B Water Quality and Quantity requirements.			X
	3.2	Thoroughfare and driveway pavement widths are the minimum required to accommodate public safety and emergency access.			X
	3.3	Rear lanes, alleys, emergency access lanes, on-street parking spaces, sidewalks, pedestrian and multi-use paths, and residential driveways are constructed of permeable materials using a section appropriate for structural and drainage requirements. In areas of poorly draining soils the permeable design may still provide water quality treatment as a “flow-through” condition with an underdrain.			X

Item #	Description	Verified	Technically Infeasible	Not Applicable	
3.4	Street tree design incorporates stormwater management practices such as tree box filters to filter and infiltrate stormwater runoff from adjacent impervious areas.			X	
3.5	Street trees are provided with adequate soil volume and structural soil design to support long-term root growth and tree canopy without excessive impact to utilities or sidewalks.			X	
Site Design	4.1	Soil testing completed by a Certified Soil Scientist is enclosed, and development is planned such that new impervious surfaces are located on less permeable soils, maximizing preservation of undisturbed well-draining soils.			X
	4.2	Infiltration BMPs are located in areas of well-draining soils.	X		
	4.3	Building roof downspouts discharge runoff to vegetated areas. Credit for Self-Treating and/or Self-Retaining Areas may be applied per the requirements of Section 1.1.2B.			X
	4.4	Runoff from impervious paved surfaces is directed towards vegetated areas for natural filtration and/or infiltration before conveyance offsite or into the storm drainage system. Credit for Self-Treating and/or Self-Retaining Areas may be applied per the requirements of Section 1.1.2B.	X		
	4.5	Driveways are the minimum required to accommodate public safety and emergency access. (Residential driveways providing access to parking areas serving three residences or less should be a maximum of 10 feet wide where practicable)			X
	4.6	Residential driveways serving three residences or less are shared wherever practicable.			X
	4.7	When alleys are not utilized, "two-track" driveways are utilized for driveways serving three residences or less wherever practicable.			X
	4.8	Tandem parking for single-family residential uses is incorporated wherever practicable.			X

	Item #	Description	Verified	Technically Infeasible	Not Applicable
Parking Design	5.1	Preferably all new parking spaces, at least 50% of new parking spaces in excess of 10 parking spaces, and all parking spaces in excess of the amount required by this Ordinance shall be constructed of permeable materials with a minimum 8-inch crushed stone infiltration bed or as otherwise required by the Town Engineer. In areas of poorly draining soils the permeable design may still provide water quality treatment as a “flow-through” condition with an underdrain. All permeable pavement systems shall meet the requirements of Stormwater Article 1.2.B.7.			X
	5.2	Signs marking permeable pavement and clearly listing applicable maintenance requirements shall be installed immediately adjacent to areas containing 5 or more permeable parking spaces, and a permeable pavement maintenance program shall be included as part of the Stormwater Operation and Maintenance Plan.			X
	5.3	Parking lot islands and landscape buffer locations should be coordinated with topography and configured as depressed bioretention and/or natural swale systems.			X
	5.4	Ten percent of parking spaces provided in excess of 10 spaces should be compact parking spaces.			X
	5.5	Sites shall include bicycle racks allowing for a bicycle frame to be secured with at least two points of contact, See Parking Standards Section 9.01 for specific requirements.			X
BMP Design	6.1	Stormwater BMPs are designed per the requirements of the Connecticut Stormwater Quality Manual, latest version, or using alternate design methods approved by the Town Engineer.	X		
	6.2	Stormwater BMPs for projects in Simsbury Center are selected according to transect zone and soil conditions per the BMP Selection Matrix Table.			X
	6.3	Site landscaping design uses native plantings and xeriscaping strategies, and the area of ornamental lawn surface is minimized.	X		

	Item #	Description	Verified	Technically Infeasible	Not Applicable
BMP Design (continued)	6.4	Rain barrels, cisterns, and/or other rainwater harvesting techniques to reuse rainwater for irrigation and other non-potable uses are incorporated into the site design.			X
	6.5	Qualifying trees, with appropriate soil volume, structural soils, and/or root barriers as required, are incorporated into the parking and landscape design as stormwater BMPs (see Tree Impervious Area Credit Section 1.2B).			X
	6.6	An Erosion and Soil Sedimentation Control Plan conforming to the standards of Connecticut Guidelines for Soil Erosion and Sediment Control is included with the project design.	X		
	6.7	Water quality and infiltration BMPs incorporate appropriate pretreatment per the Connecticut Stormwater Quality Manual, latest revision, or alternate designs approved by the Town Engineer			X
Maintenance	7.1	The site design accommodates maintenance access for all stormwater BMPs.	X		
	7.2	Stormwater Operation and Maintenance Plan is included.	X		
	7.3	Responsible Party for implementation, maintenance, and correction of stormwater treatment practices is designated including contact information.	X		



Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year Storm	Type III 24-hr		Default	24.00	1	3.20	2
2	10-Year Storm	Type III 24-hr		Default	24.00	1	4.70	2
3	25-Year Storm	Type III 24-hr		Default	24.00	1	5.50	2
4	100-Year Storm	Type III 24-hr		Default	24.00	1	6.90	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.133	39	>75% Grass cover, Good, HSG A (101A-1, 101A-2, 101C, 102A)
0.018	98	Roof (102A)
1.086	98	Track (101B-1, 101B-2, 102A)
0.183	30	Woods, Good, HSG A (101C)
4.419	53	TOTAL AREA

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.316	HSG A	101A-1, 101A-2, 101C, 102A
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
1.103	Other	101B-1, 101B-2, 102A
4.419		TOTAL AREA

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.133	0.000	0.000	0.000	0.000	3.133	>75% Grass cover, Good	101A-1, 101A-2, 101C, 102A
0.000	0.000	0.000	0.000	0.018	0.018	Roof	102A
0.000	0.000	0.000	0.000	1.086	1.086	Track	101B-1, 101B-2, 102A
0.183	0.000	0.000	0.000	0.000	0.183	Woods, Good	101C
3.316	0.000	0.000	0.000	1.103	4.419	TOTAL AREA	

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment101A-1: Runoff Area=50,538 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=210' Tc=9.7 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment101A-2: Runoff Area=41,487 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=376' Tc=10.7 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment101B-1: Runoff Area=17,224 sf 100.00% Impervious Runoff Depth=2.97"
Tc=5.0 min CN=98 Runoff=1.27 cfs 0.098 af

Subcatchment101B-2: Runoff Area=26,808 sf 100.00% Impervious Runoff Depth=2.97"
Tc=5.0 min CN=98 Runoff=1.98 cfs 0.152 af

Subcatchment101C: Runoff Area=23,772 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment102A: Runoff Area=32,673 sf 12.30% Impervious Runoff Depth=0.06"
Tc=5.0 min CN=46 Runoff=0.01 cfs 0.004 af

Pond I-1: North Ex. Infiltration Units Peak Elev=279.29' Storage=1,540 cf Inflow=1.27 cfs 0.098 af
Discarded=0.09 cfs 0.091 af Primary=0.10 cfs 0.006 af Outflow=0.18 cfs 0.098 af

Pond I-2: South Ex. Infiltration Units Peak Elev=278.70' Storage=2,126 cf Inflow=1.98 cfs 0.152 af
Discarded=0.22 cfs 0.152 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.152 af

Link DP-1: Inflow=0.10 cfs 0.006 af
Primary=0.10 cfs 0.006 af

Link DP-2: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Total Runoff Area = 4.419 ac Runoff Volume = 0.254 af Average Runoff Depth = 0.69"
75.04% Pervious = 3.316 ac 24.96% Impervious = 1.103 ac

Summary for Subcatchment 101A-2:

Runoff = 0.00 cfs @ 24.02 hrs, Volume= 0.000 af, Depth= 0.00"
 Routed to Pond I-2 : South Ex. Infiltration Units

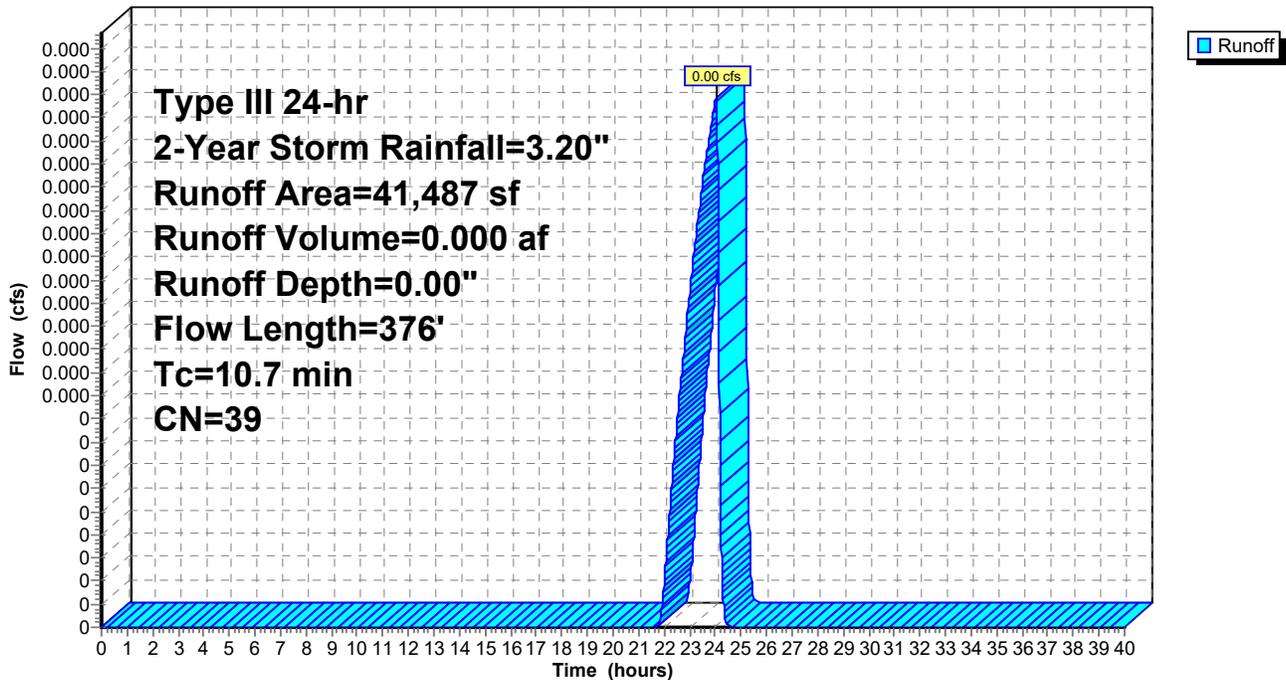
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

Area (sf)	CN	Description
41,487	39	>75% Grass cover, Good, HSG A
41,487		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	274	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
10.7	376	Total			

Subcatchment 101A-2:

Hydrograph



Summary for Subcatchment 101B-1:

Runoff = 1.27 cfs @ 12.07 hrs, Volume= 0.098 af, Depth= 2.97"
Routed to Pond I-1 : North Ex. Infiltration Units

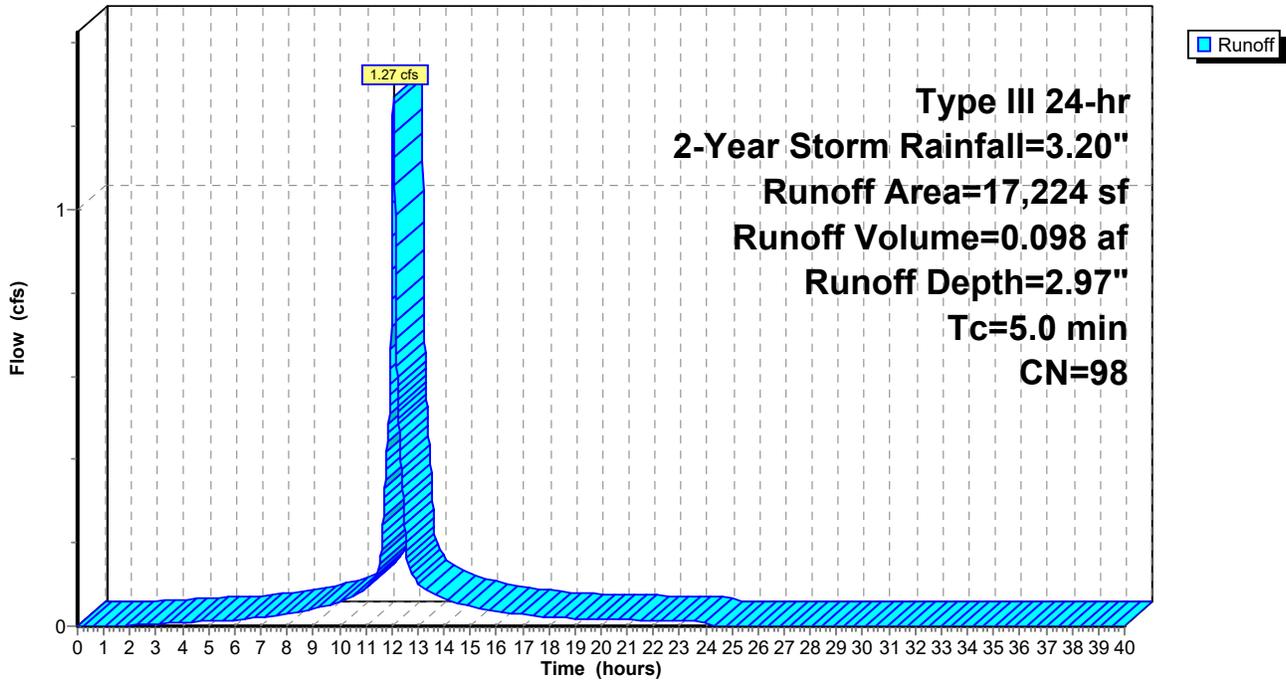
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.20"

Area (sf)	CN	Description
* 17,224	98	Track
17,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-1:

Hydrograph



Summary for Subcatchment 101B-2:

Runoff = 1.98 cfs @ 12.07 hrs, Volume= 0.152 af, Depth= 2.97"
Routed to Pond I-2 : South Ex. Infiltration Units

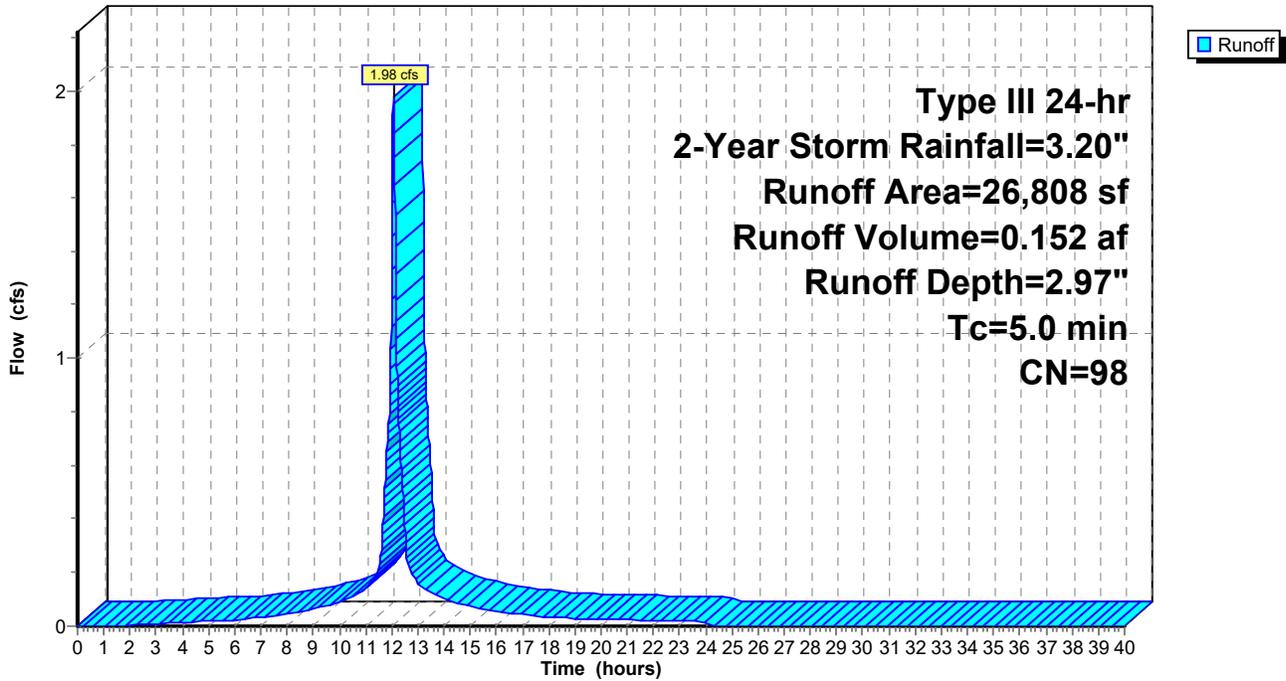
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	26,808	98	Track
	26,808		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-2:

Hydrograph



Summary for Subcatchment 101C:

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
 Routed to Link DP-1 :

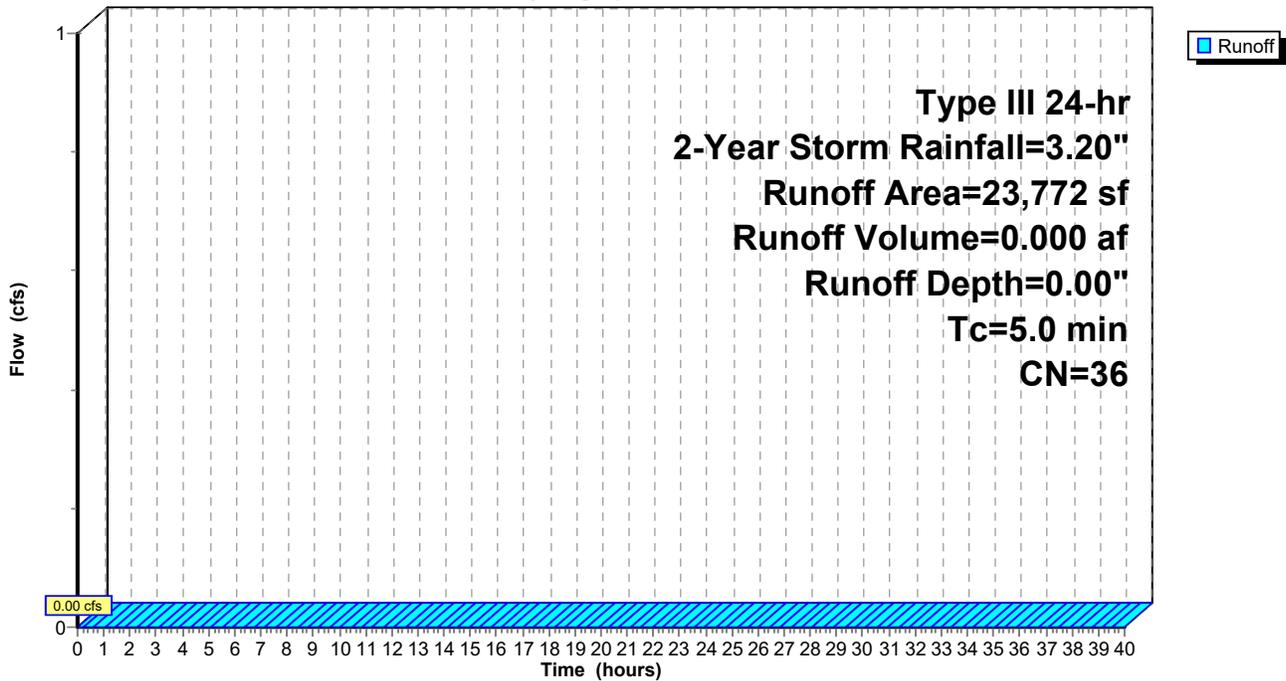
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

Area (sf)	CN	Description
15,798	39	>75% Grass cover, Good, HSG A
7,974	30	Woods, Good, HSG A
23,772	36	Weighted Average
23,772		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101C:

Hydrograph



Summary for Subcatchment 102A:

Runoff = 0.01 cfs @ 15.05 hrs, Volume= 0.004 af, Depth= 0.06"
 Routed to Link DP-2 :

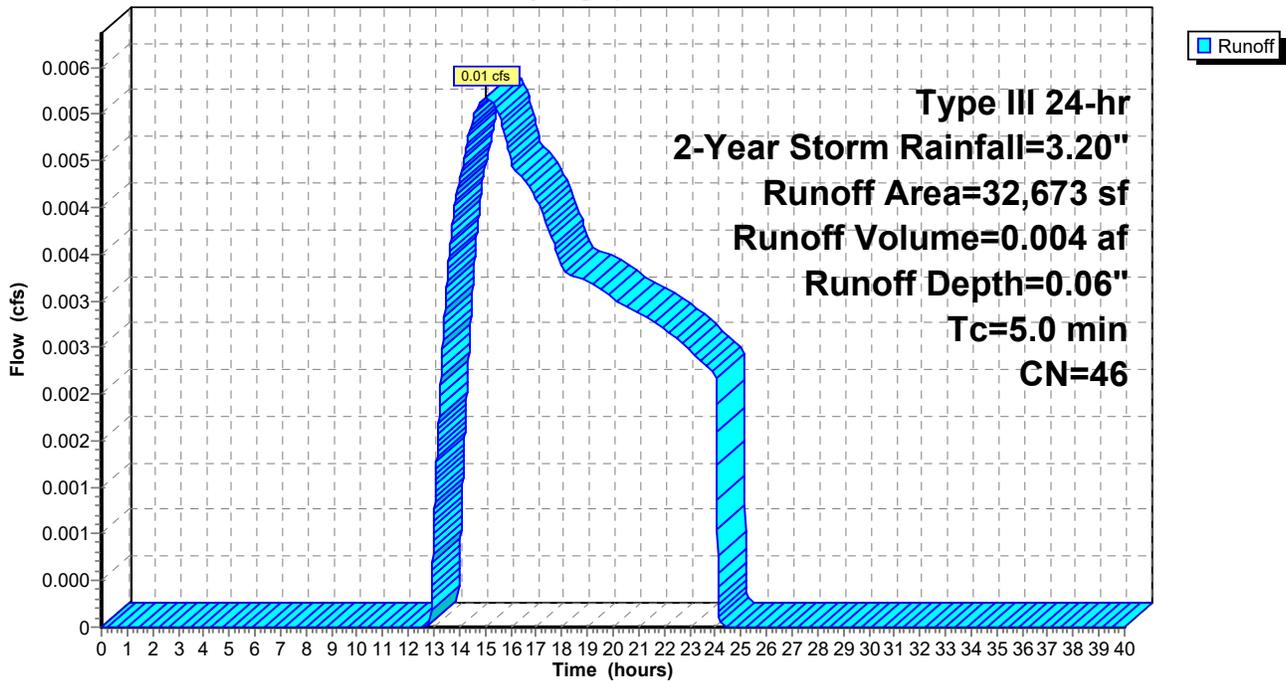
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	763	98	Roof
*	3,255	98	Track
	28,655	39	>75% Grass cover, Good, HSG A
	32,673	46	Weighted Average
	28,655		87.70% Pervious Area
	4,018		12.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 102A:

Hydrograph



Summary for Pond I-1: North Ex. Infiltration Units

Inflow Area = 1.556 ac, 25.42% Impervious, Inflow Depth = 0.75" for 2-Year Storm event
 Inflow = 1.27 cfs @ 12.07 hrs, Volume= 0.098 af
 Outflow = 0.18 cfs @ 12.55 hrs, Volume= 0.098 af, Atten= 86%, Lag= 29.0 min
 Discarded = 0.09 cfs @ 11.05 hrs, Volume= 0.091 af
 Primary = 0.10 cfs @ 12.55 hrs, Volume= 0.006 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.29' @ 12.55 hrs Surf.Area= 1,838 sf Storage= 1,540 cf
 Flood Elev= 282.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 117.5 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 117.5 min (873.2 - 755.7)

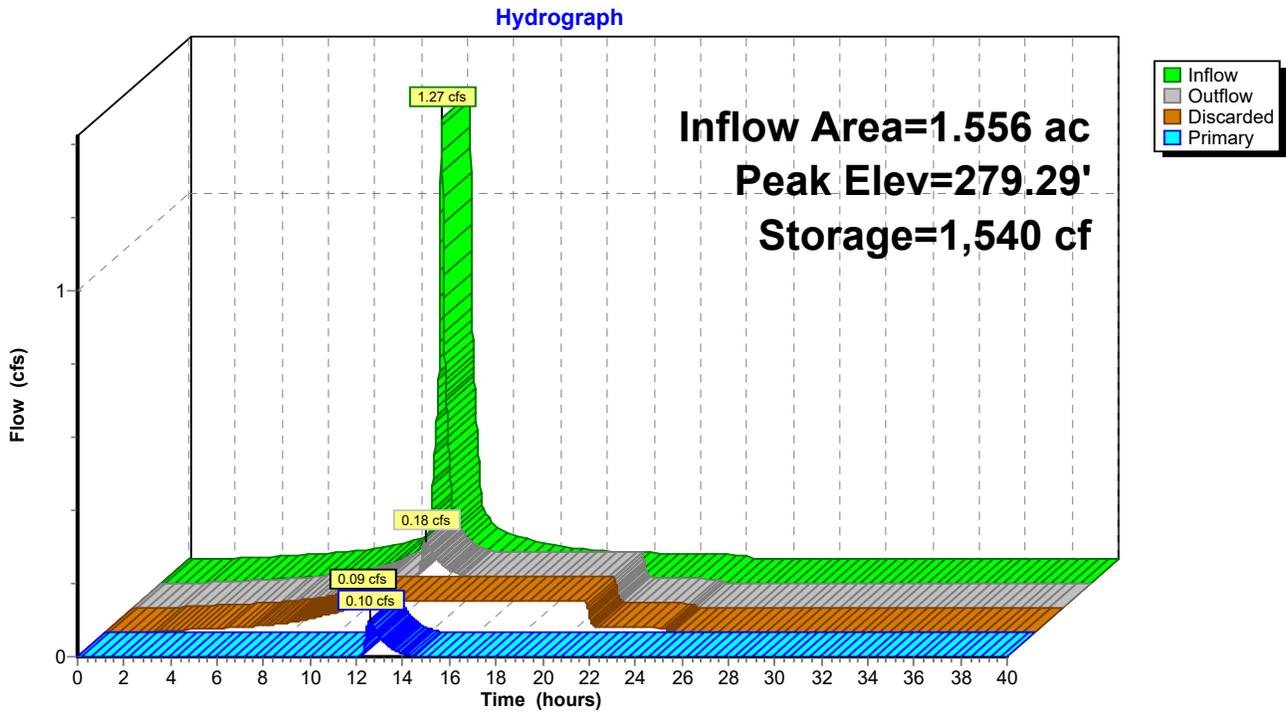
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25'L x 2.08'H Prismatoid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50'L x 2.08'H Prismatoid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 11.05 hrs HW=278.05' (Free Discharge)
 ↑**3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.10 cfs @ 12.55 hrs HW=279.29' (Free Discharge)
 ↑**1=6" PVC** (Inlet Controls 0.10 cfs @ 1.23 fps)
 ↑**2=6" Manifold** (Passes 0.10 cfs of 0.49 cfs potential flow)

Pond I-1: North Ex. Infiltration Units



Summary for Pond I-2: South Ex. Infiltration Units

Inflow Area = 1.568 ac, 39.25% Impervious, Inflow Depth = 1.17" for 2-Year Storm event
 Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.152 af
 Outflow = 0.22 cfs @ 11.59 hrs, Volume= 0.152 af, Atten= 89%, Lag= 0.0 min
 Discarded = 0.22 cfs @ 11.59 hrs, Volume= 0.152 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.70' @ 12.67 hrs Surf.Area= 4,722 sf Storage= 2,126 cf
 Flood Elev= 282.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 64.1 min calculated for 0.152 af (100% of inflow)
 Center-of-Mass det. time= 64.1 min (819.6 - 755.6)

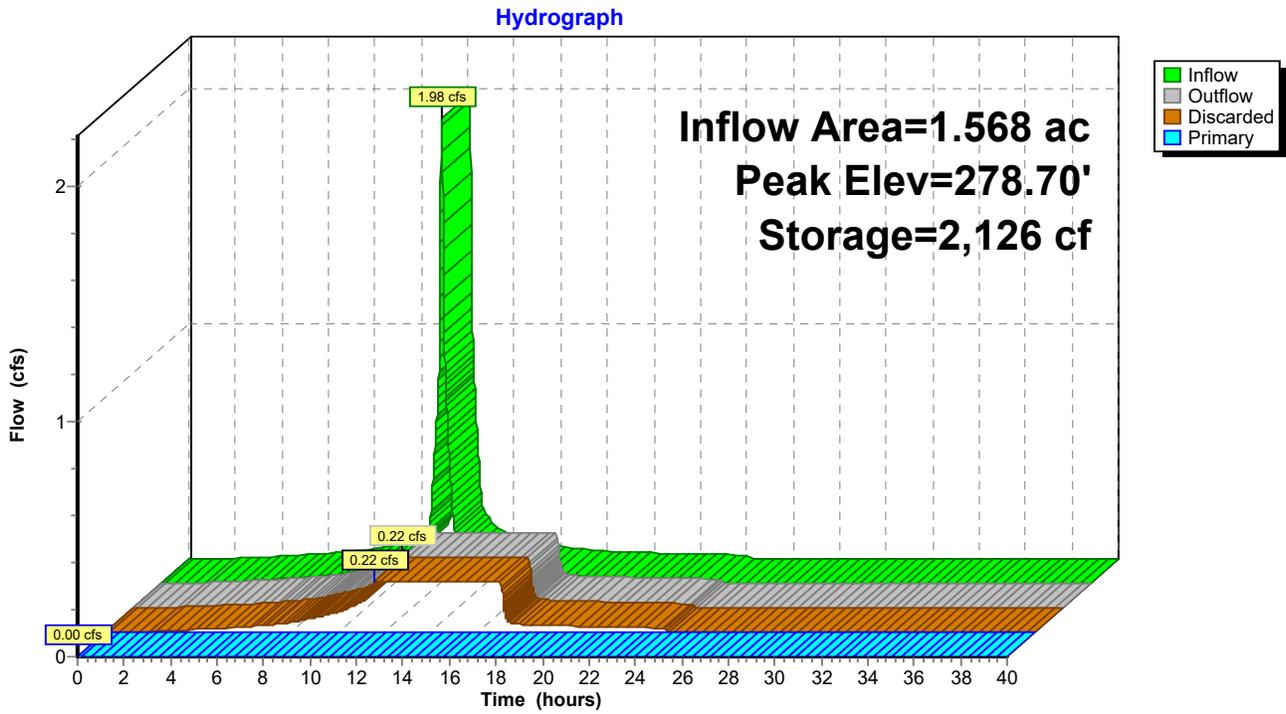
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prisma toid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prisma toid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 11.59 hrs HW=278.05' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=278.00' (Free Discharge)
 ↑1=6" PVC (Controls 0.00 cfs)
 ↑2=6" Manifold (Controls 0.00 cfs)

Pond I-2: South Ex. Infiltration Units



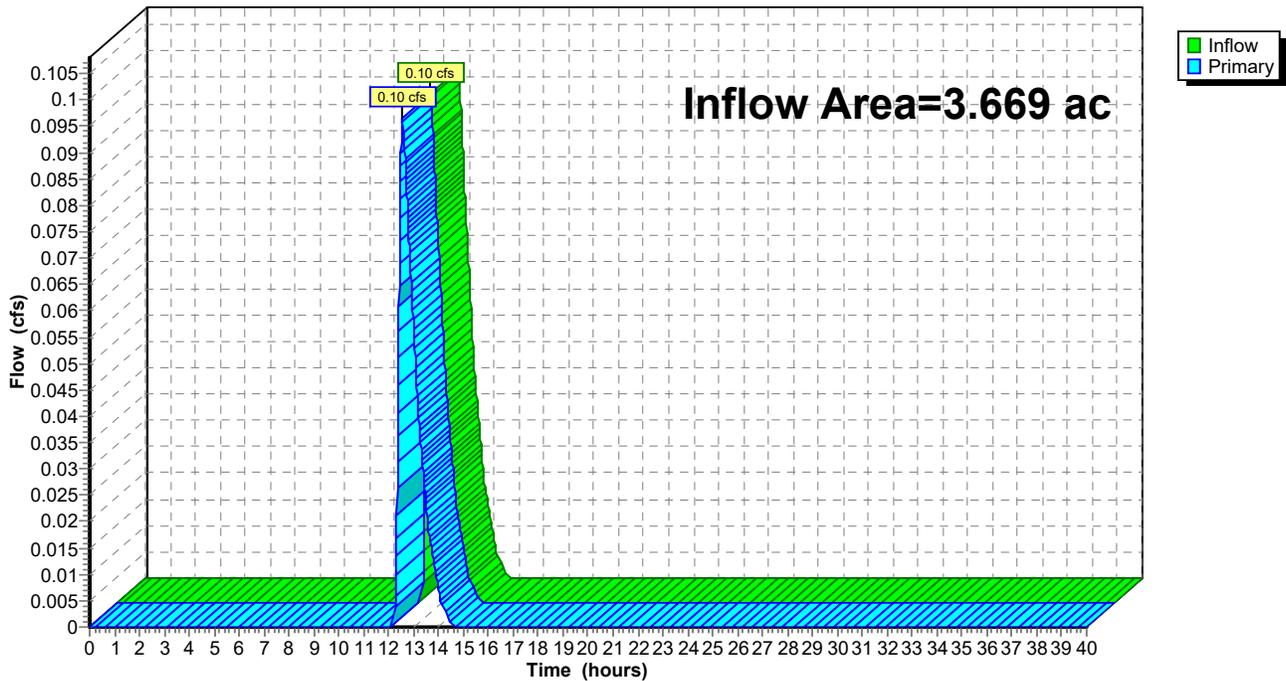
Summary for Link DP-1:

Inflow Area = 3.669 ac, 27.55% Impervious, Inflow Depth = 0.02" for 2-Year Storm event
Inflow = 0.10 cfs @ 12.55 hrs, Volume= 0.006 af
Primary = 0.10 cfs @ 12.55 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



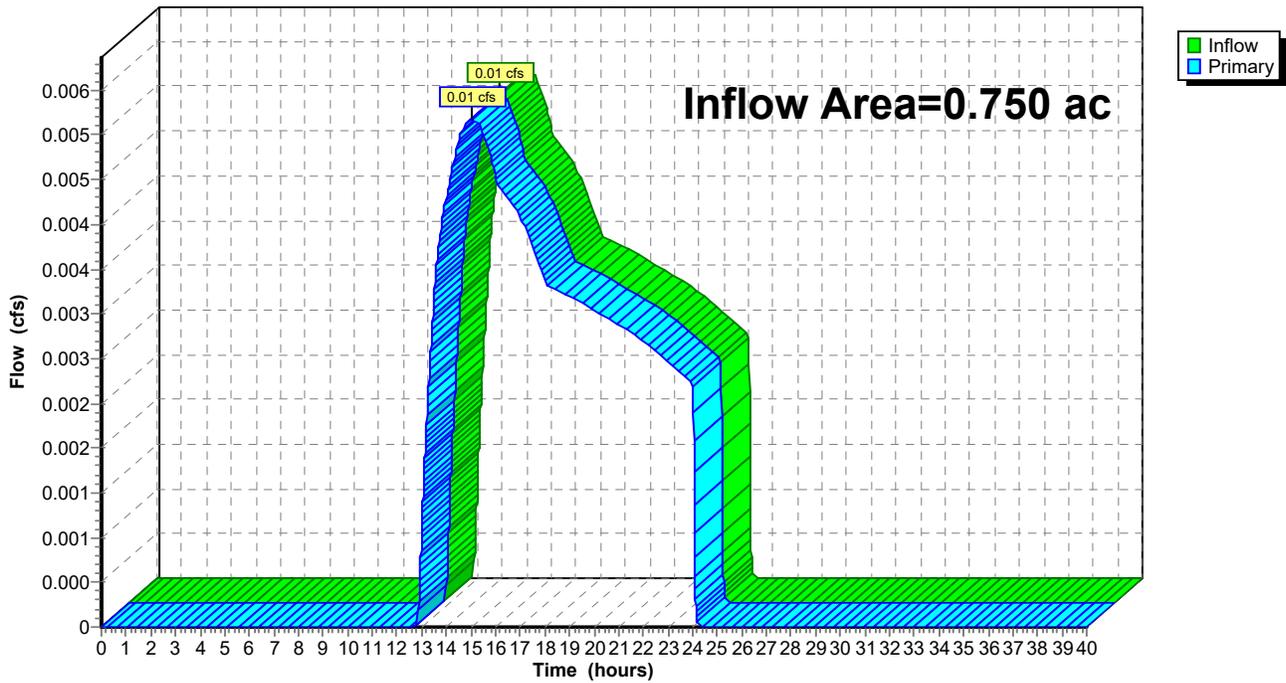
Summary for Link DP-2:

Inflow Area = 0.750 ac, 12.30% Impervious, Inflow Depth = 0.06" for 2-Year Storm event
Inflow = 0.01 cfs @ 15.05 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 15.05 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment101A-1: Runoff Area=50,538 sf 0.00% Impervious Runoff Depth=0.14"
 Flow Length=210' Tc=9.7 min CN=39 Runoff=0.02 cfs 0.014 af

Subcatchment101A-2: Runoff Area=41,487 sf 0.00% Impervious Runoff Depth=0.14"
 Flow Length=376' Tc=10.7 min CN=39 Runoff=0.02 cfs 0.011 af

Subcatchment101B-1: Runoff Area=17,224 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=1.88 cfs 0.147 af

Subcatchment101B-2: Runoff Area=26,808 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=2.93 cfs 0.229 af

Subcatchment101C: Runoff Area=23,772 sf 0.00% Impervious Runoff Depth=0.07"
 Tc=5.0 min CN=36 Runoff=0.00 cfs 0.003 af

Subcatchment102A: Runoff Area=32,673 sf 12.30% Impervious Runoff Depth=0.39"
 Tc=5.0 min CN=46 Runoff=0.13 cfs 0.025 af

Pond I-1: North Ex. Infiltration Units Peak Elev=279.91' Storage=1,958 cf Inflow=1.88 cfs 0.161 af
 Discarded=0.09 cfs 0.121 af Primary=0.57 cfs 0.040 af Outflow=0.65 cfs 0.161 af

Pond I-2: South Ex. Infiltration Units Peak Elev=279.17' Storage=3,697 cf Inflow=2.93 cfs 0.240 af
 Discarded=0.22 cfs 0.238 af Primary=0.02 cfs 0.002 af Outflow=0.24 cfs 0.240 af

Link DP-1: Inflow=0.57 cfs 0.046 af
 Primary=0.57 cfs 0.046 af

Link DP-2: Inflow=0.13 cfs 0.025 af
 Primary=0.13 cfs 0.025 af

Total Runoff Area = 4.419 ac Runoff Volume = 0.429 af Average Runoff Depth = 1.16"
75.04% Pervious = 3.316 ac 24.96% Impervious = 1.103 ac

Summary for Subcatchment 101A-1:

Runoff = 0.02 cfs @ 13.83 hrs, Volume= 0.014 af, Depth= 0.14"
 Routed to Pond I-1 : North Ex. Infiltration Units

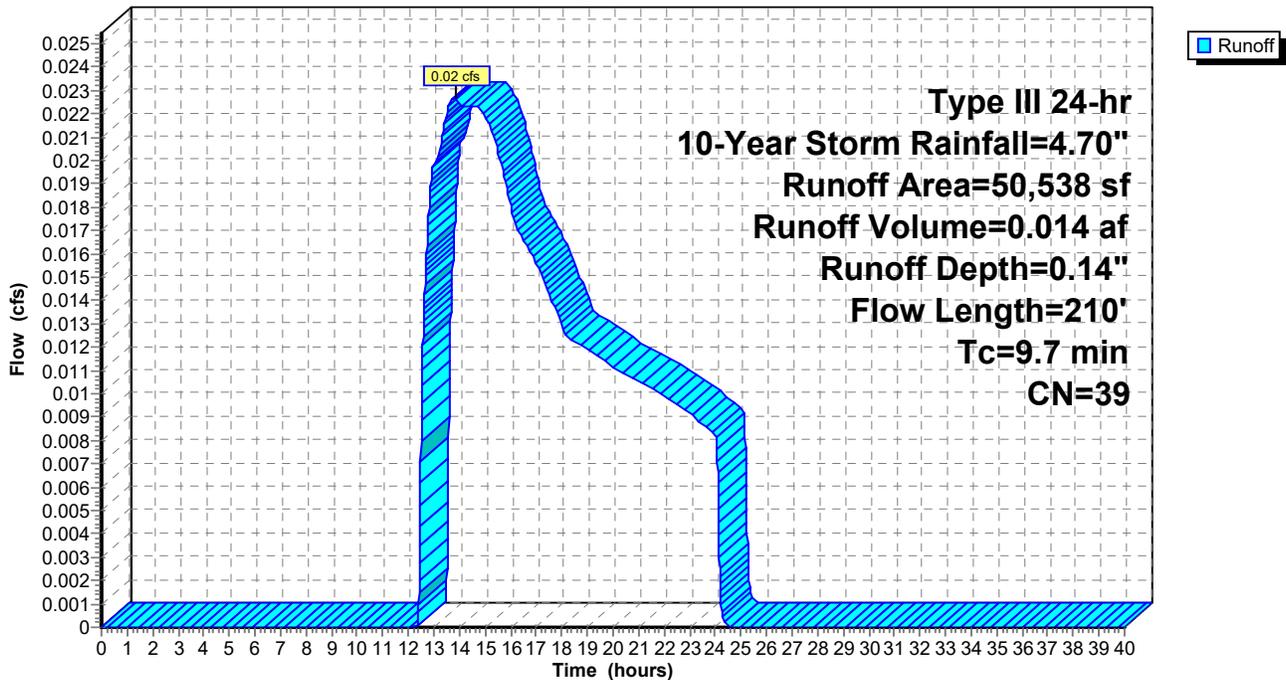
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
50,538	39	>75% Grass cover, Good, HSG A
50,538		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	108	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
9.7	210	Total			

Subcatchment 101A-1:

Hydrograph



Summary for Subcatchment 101A-2:

Runoff = 0.02 cfs @ 13.85 hrs, Volume= 0.011 af, Depth= 0.14"
 Routed to Pond I-2 : South Ex. Infiltration Units

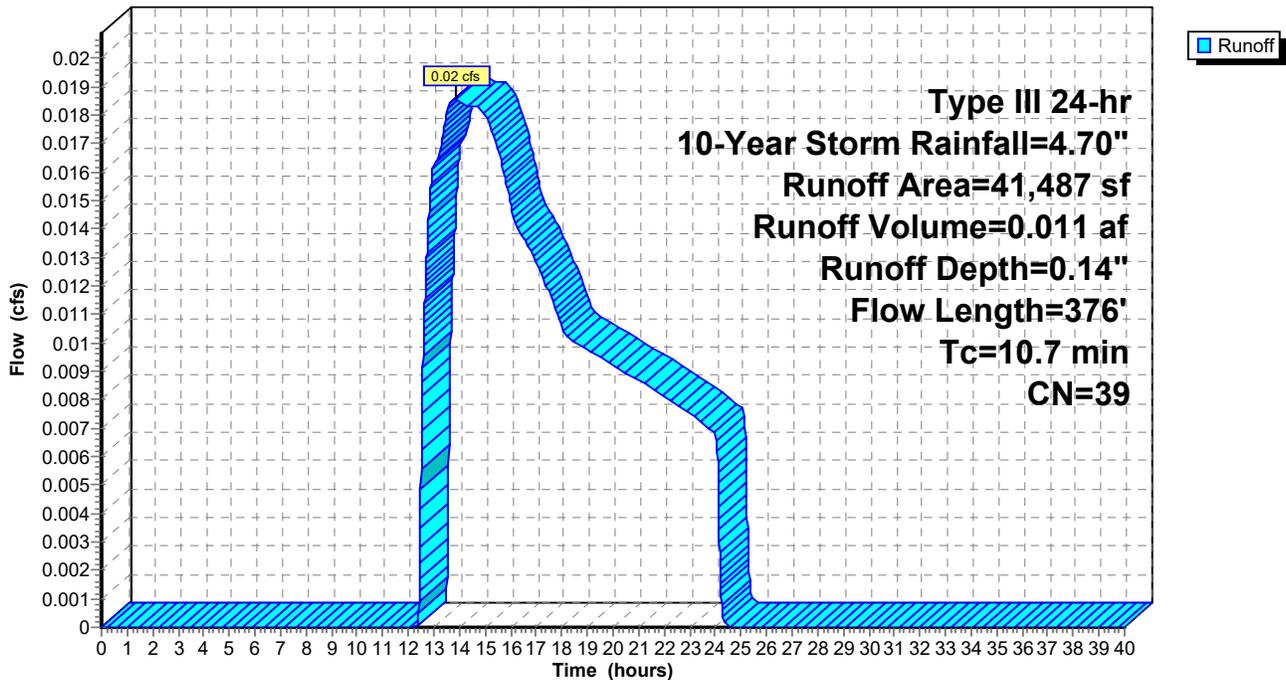
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
41,487	39	>75% Grass cover, Good, HSG A
41,487		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	274	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
10.7	376	Total			

Subcatchment 101A-2:

Hydrograph



Summary for Subcatchment 101B-1:

Runoff = 1.88 cfs @ 12.07 hrs, Volume= 0.147 af, Depth= 4.46"
Routed to Pond I-1 : North Ex. Infiltration Units

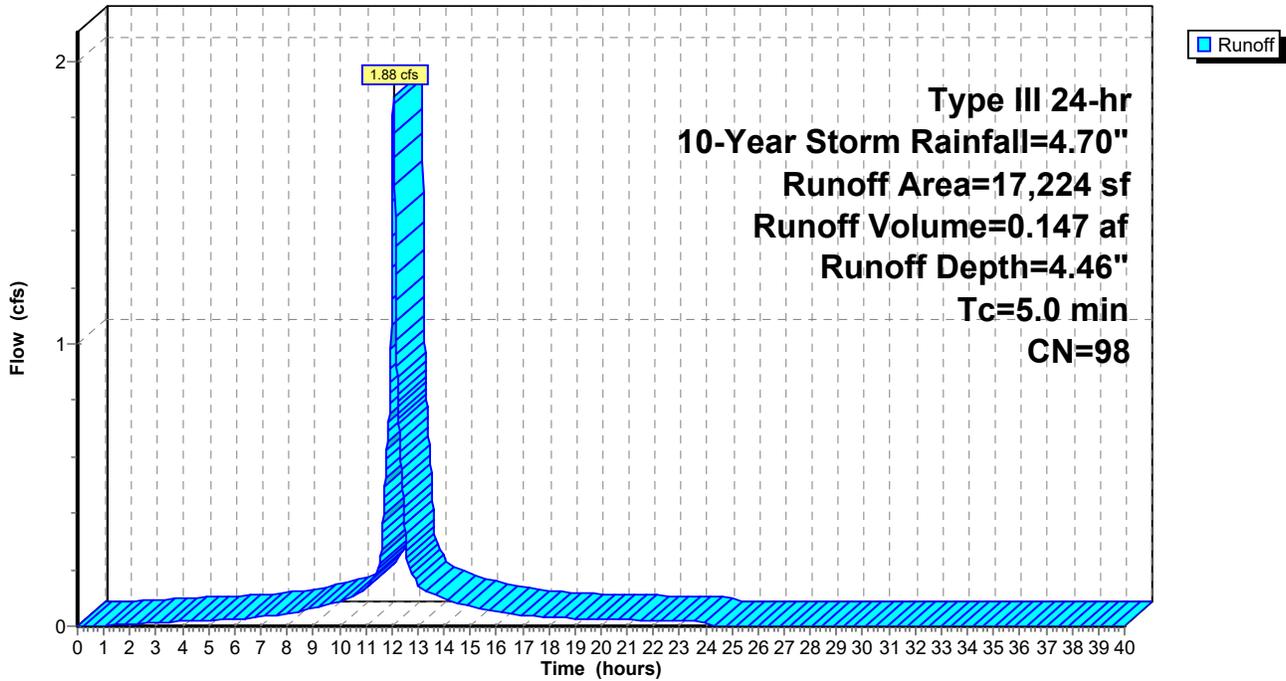
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
* 17,224	98	Track
17,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-1:

Hydrograph



Summary for Subcatchment 101B-2:

Runoff = 2.93 cfs @ 12.07 hrs, Volume= 0.229 af, Depth= 4.46"
 Routed to Pond I-2 : South Ex. Infiltration Units

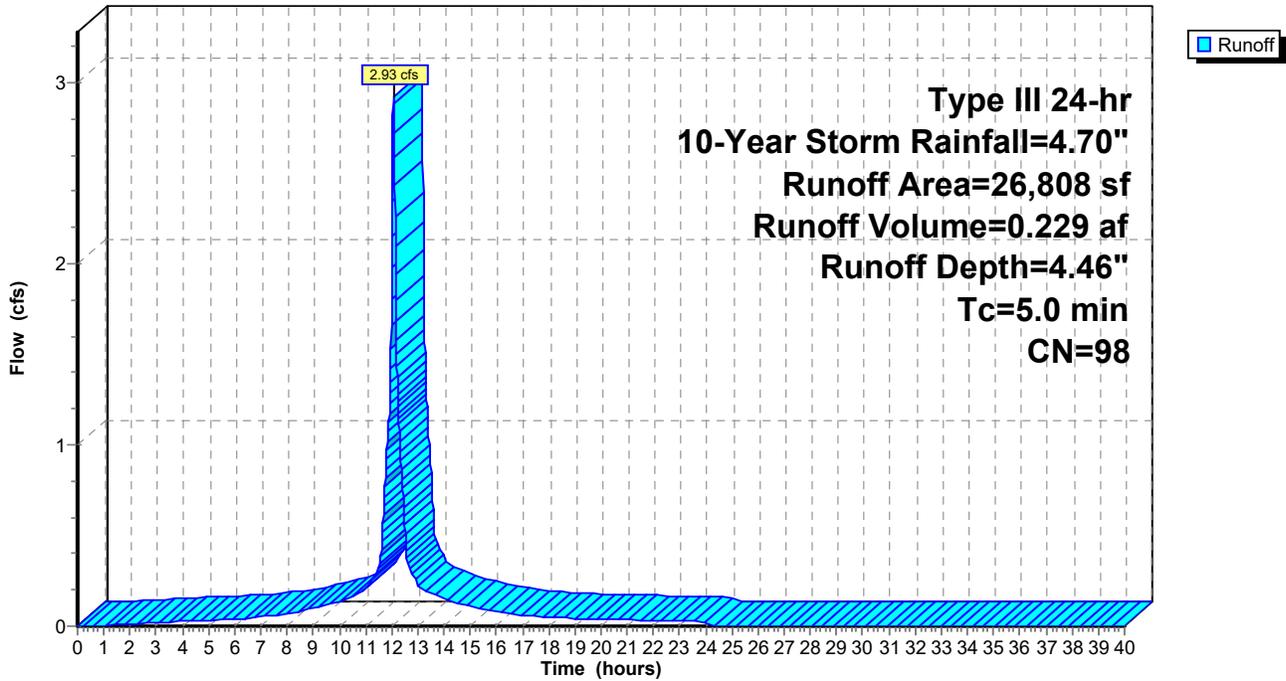
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
* 26,808	98	Track
26,808		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-2:

Hydrograph



Summary for Subcatchment 101C:

Runoff = 0.00 cfs @ 15.25 hrs, Volume= 0.003 af, Depth= 0.07"
 Routed to Link DP-1 :

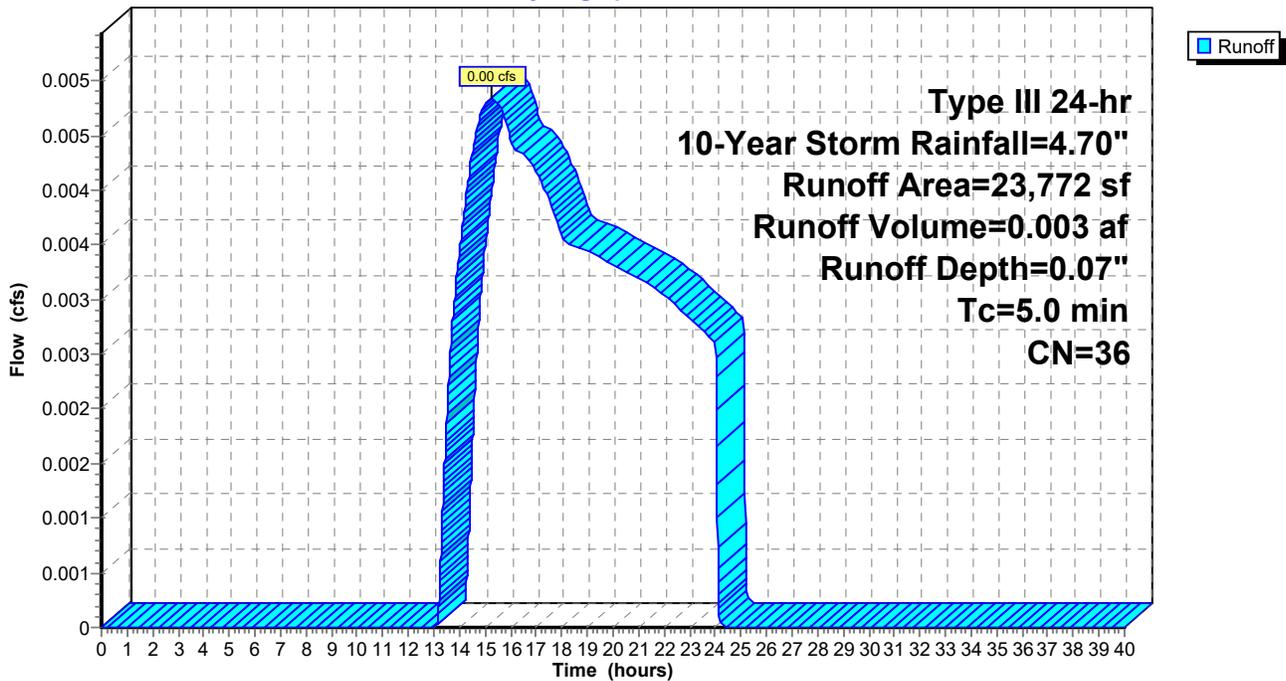
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
15,798	39	>75% Grass cover, Good, HSG A
7,974	30	Woods, Good, HSG A
23,772	36	Weighted Average
23,772		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101C:

Hydrograph



Summary for Subcatchment 102A:

Runoff = 0.13 cfs @ 12.30 hrs, Volume= 0.025 af, Depth= 0.39"
 Routed to Link DP-2 :

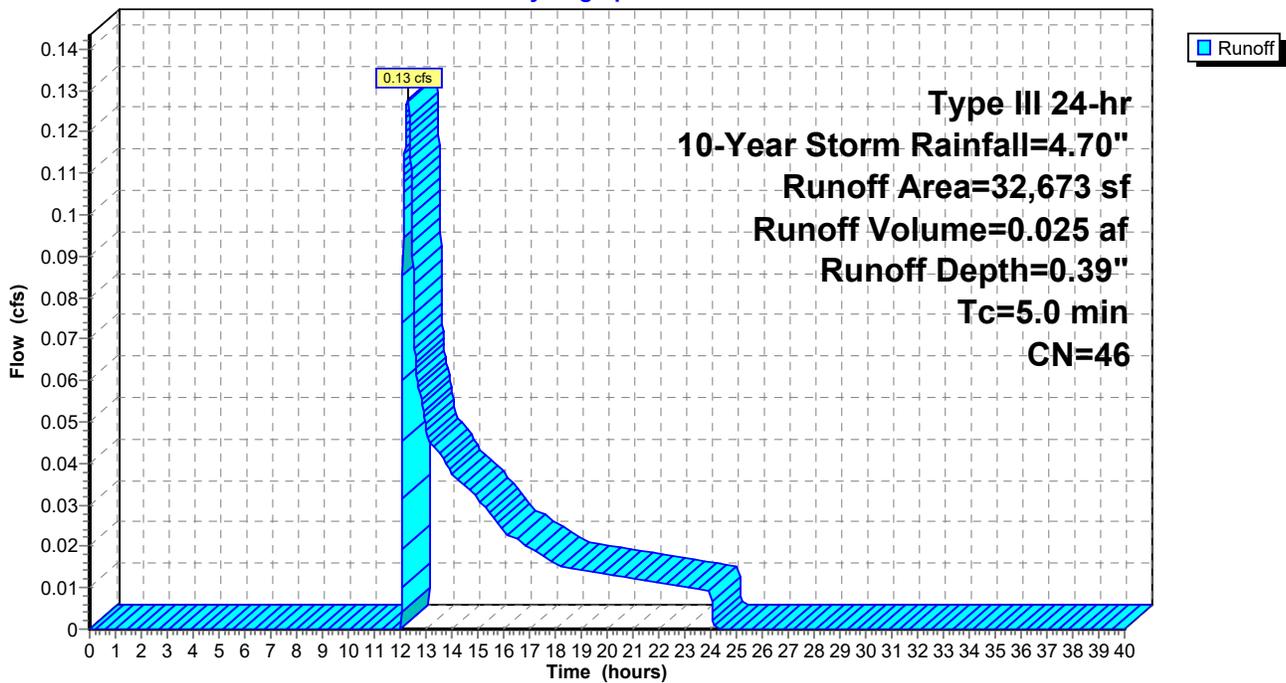
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

	Area (sf)	CN	Description
*	763	98	Roof
*	3,255	98	Track
	28,655	39	>75% Grass cover, Good, HSG A
	32,673	46	Weighted Average
	28,655		87.70% Pervious Area
	4,018		12.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 102A:

Hydrograph



Summary for Pond I-1: North Ex. Infiltration Units

Inflow Area = 1.556 ac, 25.42% Impervious, Inflow Depth = 1.24" for 10-Year Storm event
 Inflow = 1.88 cfs @ 12.07 hrs, Volume= 0.161 af
 Outflow = 0.65 cfs @ 12.32 hrs, Volume= 0.161 af, Atten= 65%, Lag= 14.8 min
 Discarded = 0.09 cfs @ 10.02 hrs, Volume= 0.121 af
 Primary = 0.57 cfs @ 12.32 hrs, Volume= 0.040 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.91' @ 12.32 hrs Surf.Area= 1,838 sf Storage= 1,958 cf
 Flood Elev= 282.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 109.8 min calculated for 0.161 af (100% of inflow)
 Center-of-Mass det. time= 109.8 min (882.9 - 773.1)

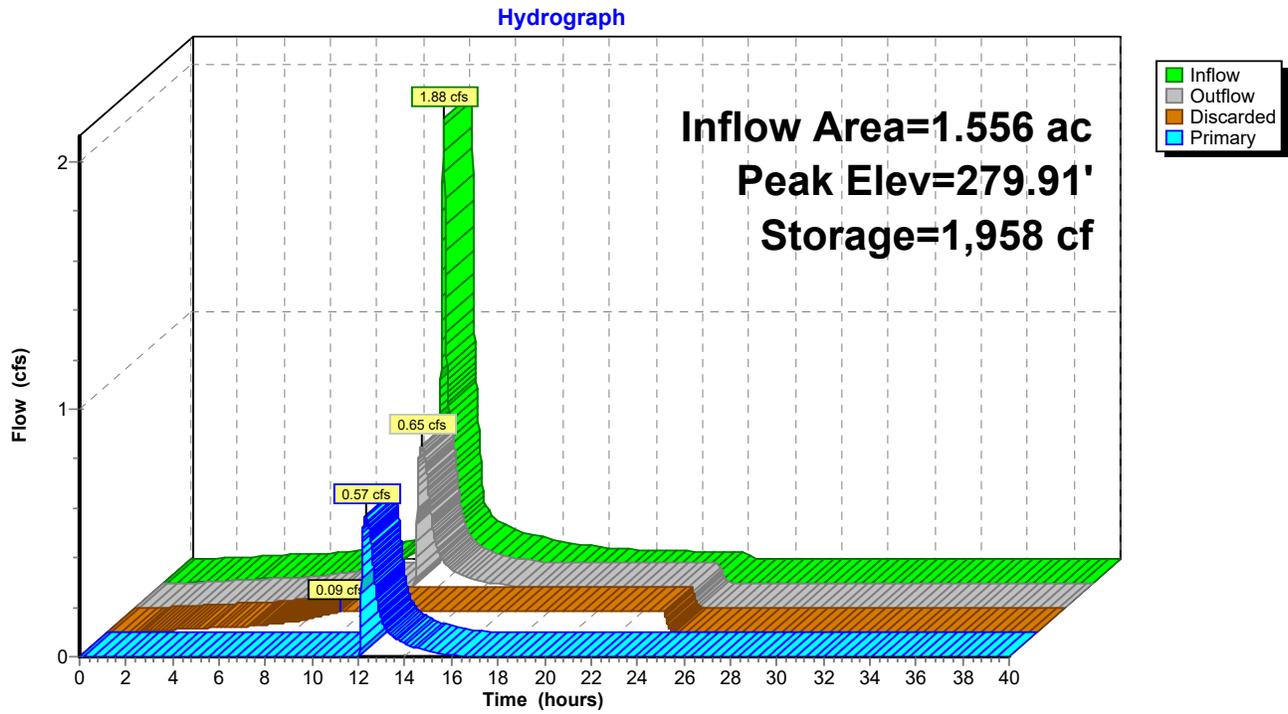
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25"L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50"L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 10.02 hrs HW=278.05' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.57 cfs @ 12.32 hrs HW=279.91' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 0.57 cfs @ 2.89 fps)
 ↑ **2=6" Manifold** (Passes 0.57 cfs of 2.88 cfs potential flow)

Pond I-1: North Ex. Infiltration Units



Summary for Pond I-2: South Ex. Infiltration Units

Inflow Area = 1.568 ac, 39.25% Impervious, Inflow Depth = 1.84" for 10-Year Storm event
 Inflow = 2.93 cfs @ 12.07 hrs, Volume= 0.240 af
 Outflow = 0.24 cfs @ 13.04 hrs, Volume= 0.240 af, Atten= 92%, Lag= 58.2 min
 Discarded = 0.22 cfs @ 11.19 hrs, Volume= 0.238 af
 Primary = 0.02 cfs @ 13.04 hrs, Volume= 0.002 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.17' @ 13.04 hrs Surf.Area= 4,722 sf Storage= 3,697 cf
 Flood Elev= 282.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 125.0 min calculated for 0.240 af (100% of inflow)
 Center-of-Mass det. time= 125.0 min (886.9 - 761.9)

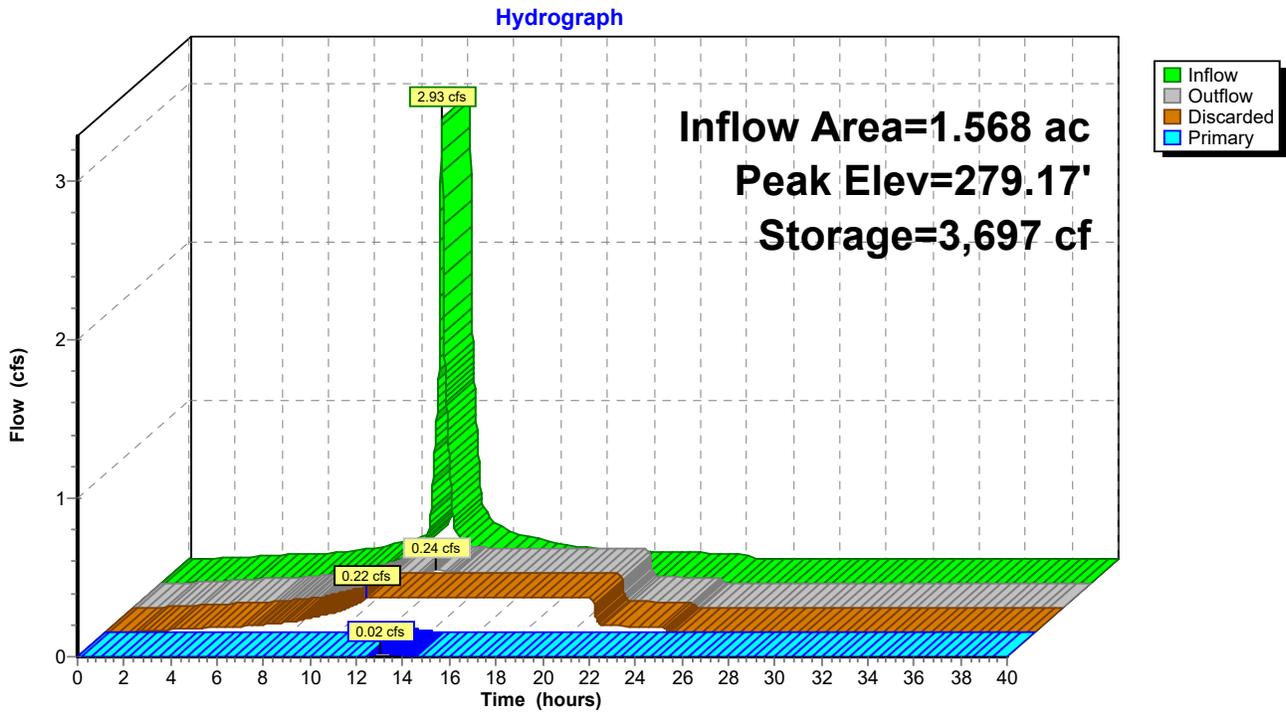
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prismatoid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prismatoid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 11.19 hrs HW=278.05' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.02 cfs @ 13.04 hrs HW=279.17' (Free Discharge)
 ↑1=6" PVC (Inlet Controls 0.02 cfs @ 0.81 fps)
 ↑2=6" Manifold (Passes 0.02 cfs of 0.20 cfs potential flow)

Pond I-2: South Ex. Infiltration Units



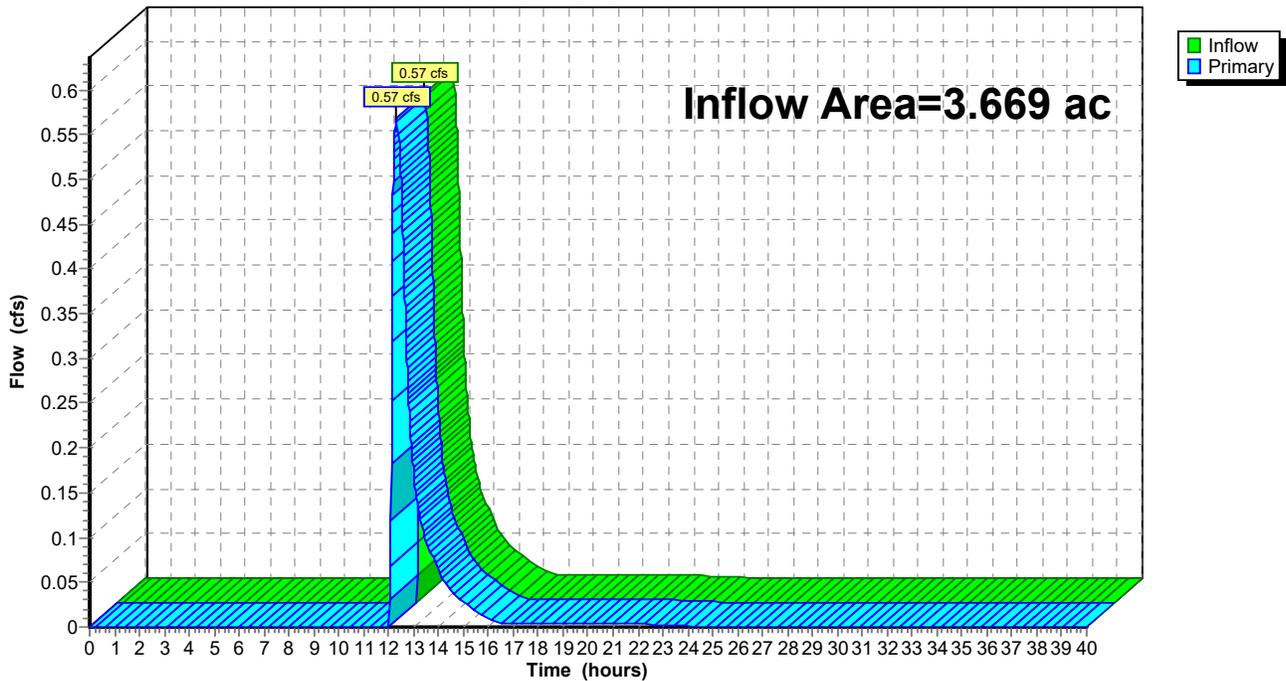
Summary for Link DP-1:

Inflow Area = 3.669 ac, 27.55% Impervious, Inflow Depth = 0.15" for 10-Year Storm event
Inflow = 0.57 cfs @ 12.32 hrs, Volume= 0.046 af
Primary = 0.57 cfs @ 12.32 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



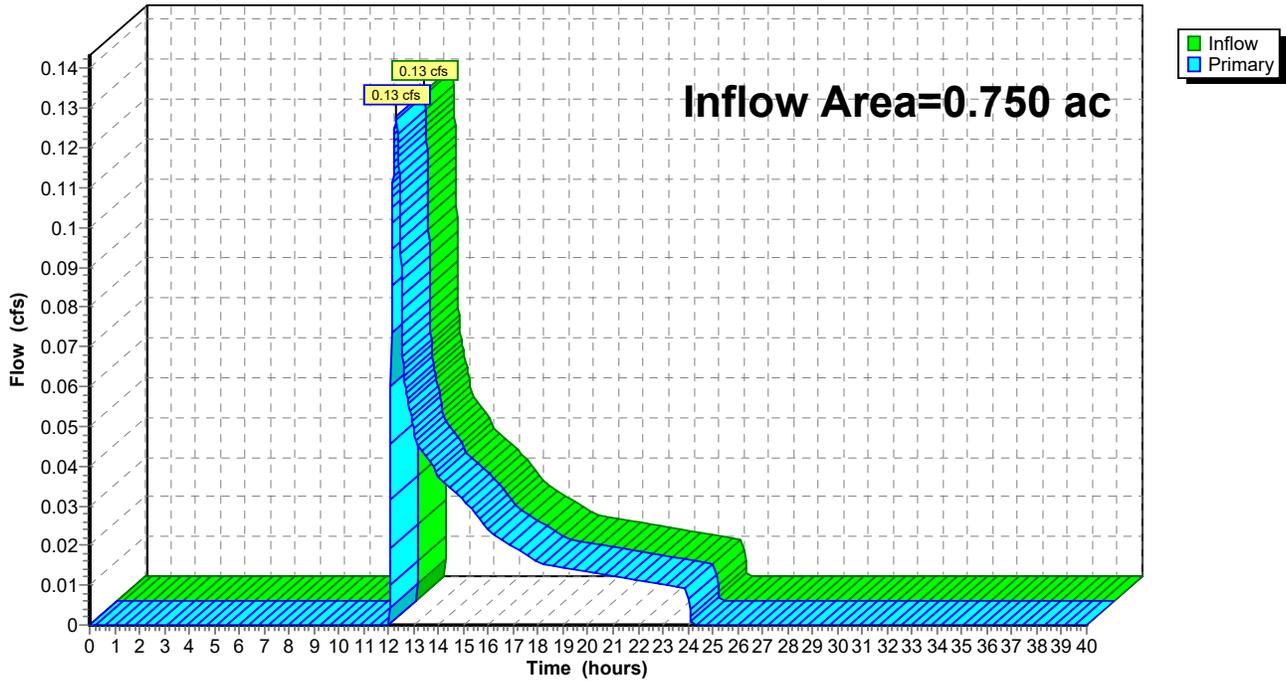
Summary for Link DP-2:

Inflow Area = 0.750 ac, 12.30% Impervious, Inflow Depth = 0.39" for 10-Year Storm event
Inflow = 0.13 cfs @ 12.30 hrs, Volume= 0.025 af
Primary = 0.13 cfs @ 12.30 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment101A-1: Runoff Area=50,538 sf 0.00% Impervious Runoff Depth=0.31"
 Flow Length=210' Tc=9.7 min CN=39 Runoff=0.11 cfs 0.030 af

Subcatchment101A-2: Runoff Area=41,487 sf 0.00% Impervious Runoff Depth=0.31"
 Flow Length=376' Tc=10.7 min CN=39 Runoff=0.09 cfs 0.025 af

Subcatchment101B-1: Runoff Area=17,224 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=2.21 cfs 0.173 af

Subcatchment101B-2: Runoff Area=26,808 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=3.43 cfs 0.270 af

Subcatchment101C: Runoff Area=23,772 sf 0.00% Impervious Runoff Depth=0.19"
 Tc=5.0 min CN=36 Runoff=0.01 cfs 0.009 af

Subcatchment102A: Runoff Area=32,673 sf 12.30% Impervious Runoff Depth=0.67"
 Tc=5.0 min CN=46 Runoff=0.33 cfs 0.042 af

Pond I-1: North Ex. Infiltration Units Peak Elev=285.20' Storage=2,061 cf Inflow=2.21 cfs 0.204 af
 Discarded=0.09 cfs 0.134 af Primary=1.83 cfs 0.070 af Outflow=1.92 cfs 0.204 af

Pond I-2: South Ex. Infiltration Units Peak Elev=279.44' Storage=4,340 cf Inflow=3.43 cfs 0.295 af
 Discarded=0.22 cfs 0.268 af Primary=0.25 cfs 0.027 af Outflow=0.47 cfs 0.295 af

Link DP-1: Inflow=1.83 cfs 0.105 af
 Primary=1.83 cfs 0.105 af

Link DP-2: Inflow=0.33 cfs 0.042 af
 Primary=0.33 cfs 0.042 af

Total Runoff Area = 4.419 ac Runoff Volume = 0.549 af Average Runoff Depth = 1.49"
75.04% Pervious = 3.316 ac 24.96% Impervious = 1.103 ac

Summary for Subcatchment 101A-1:

Runoff = 0.11 cfs @ 12.45 hrs, Volume= 0.030 af, Depth= 0.31"
 Routed to Pond I-1 : North Ex. Infiltration Units

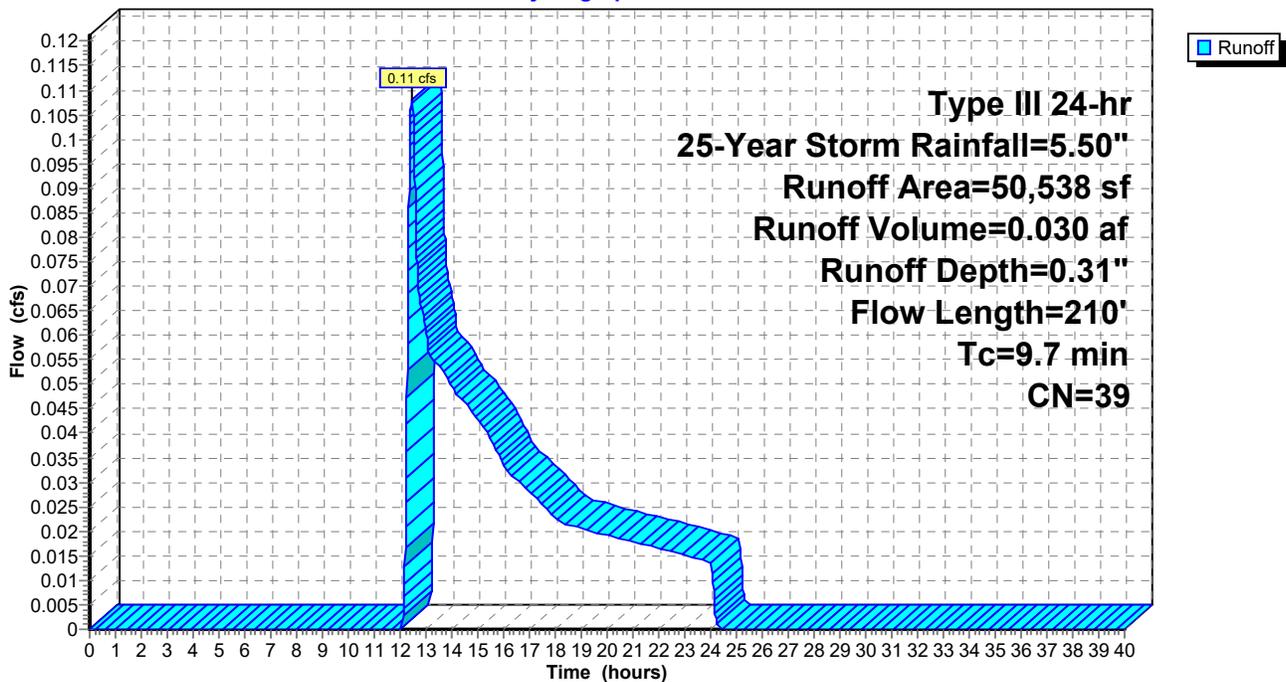
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
50,538	39	>75% Grass cover, Good, HSG A
50,538		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	108	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
9.7	210	Total			

Subcatchment 101A-1:

Hydrograph



Summary for Subcatchment 101A-2:

Runoff = 0.09 cfs @ 12.47 hrs, Volume= 0.025 af, Depth= 0.31"
 Routed to Pond I-2 : South Ex. Infiltration Units

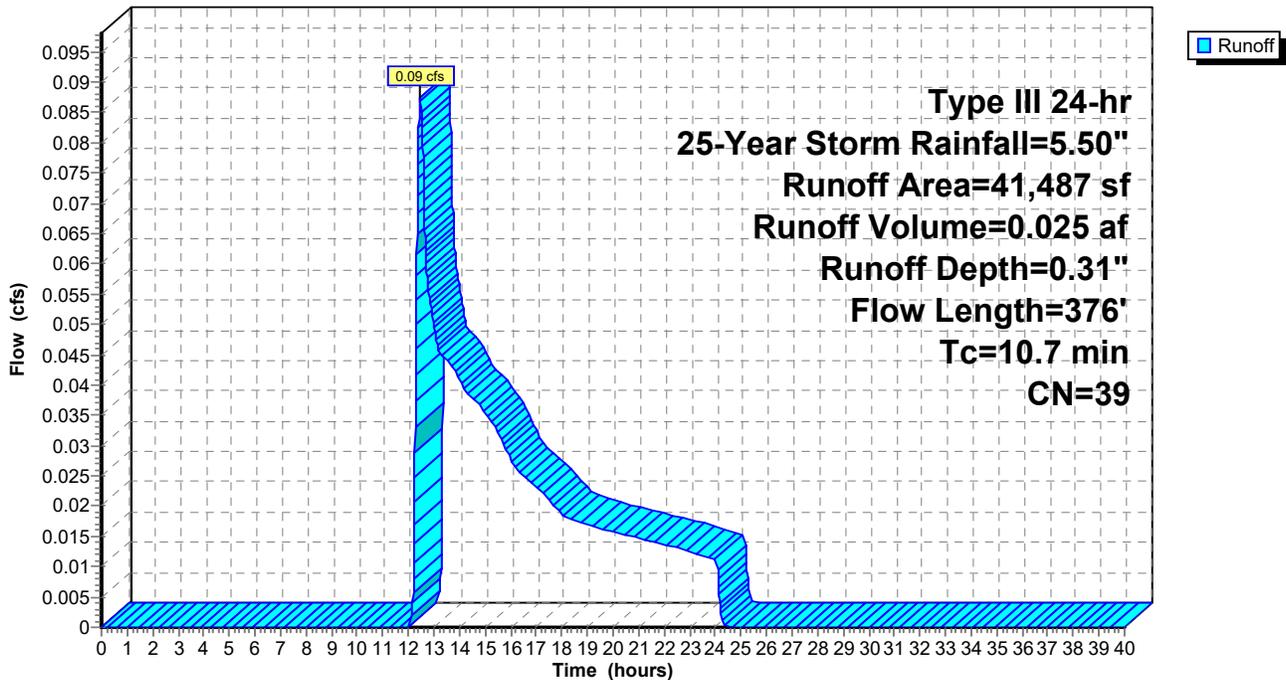
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
41,487	39	>75% Grass cover, Good, HSG A
41,487		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	274	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
10.7	376	Total			

Subcatchment 101A-2:

Hydrograph



Summary for Subcatchment 101B-1:

Runoff = 2.21 cfs @ 12.07 hrs, Volume= 0.173 af, Depth= 5.26"
 Routed to Pond I-1 : North Ex. Infiltration Units

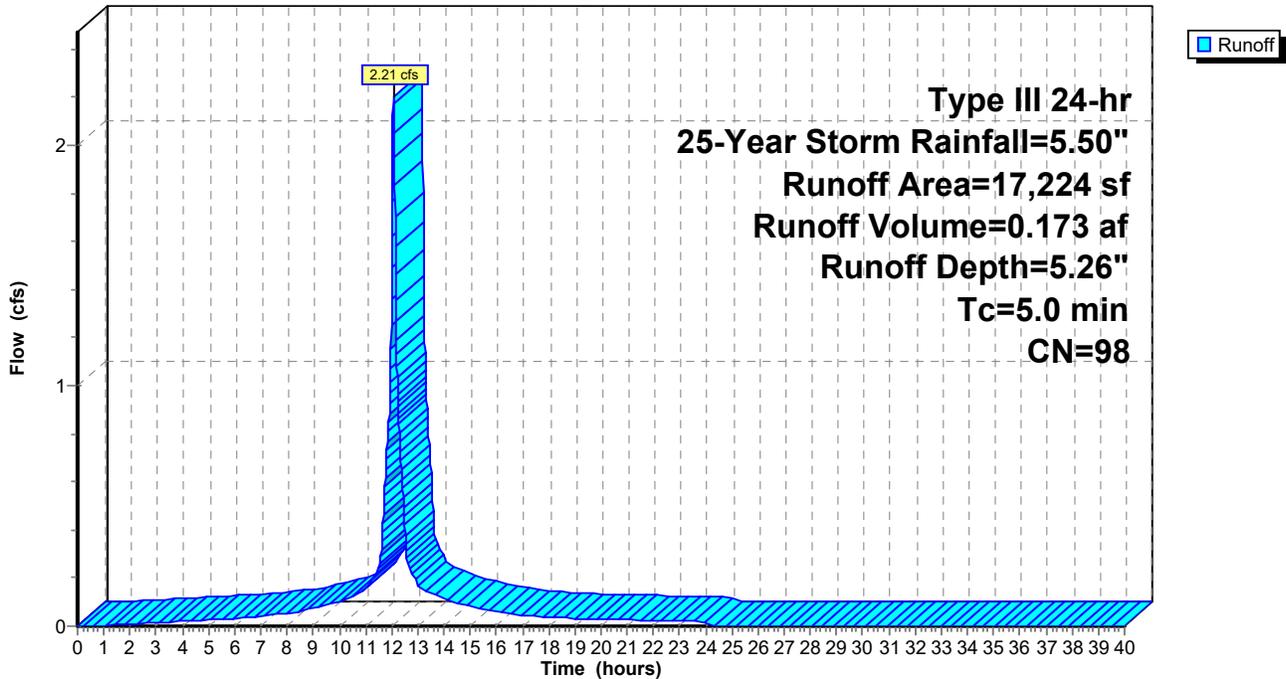
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
* 17,224	98	Track
17,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-1:

Hydrograph



Summary for Subcatchment 101B-2:

Runoff = 3.43 cfs @ 12.07 hrs, Volume= 0.270 af, Depth= 5.26"
 Routed to Pond I-2 : South Ex. Infiltration Units

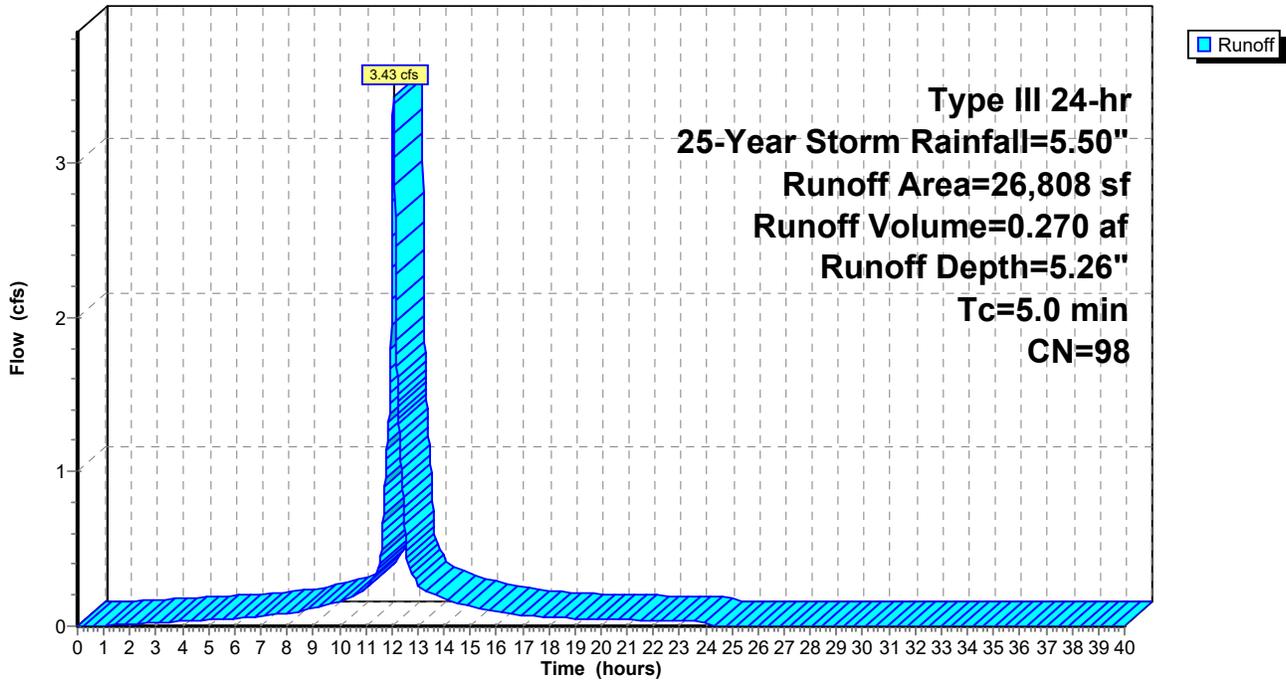
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
* 26,808	98	Track
26,808		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-2:

Hydrograph



Summary for Subcatchment 101C:

Runoff = 0.01 cfs @ 13.63 hrs, Volume= 0.009 af, Depth= 0.19"
 Routed to Link DP-1 :

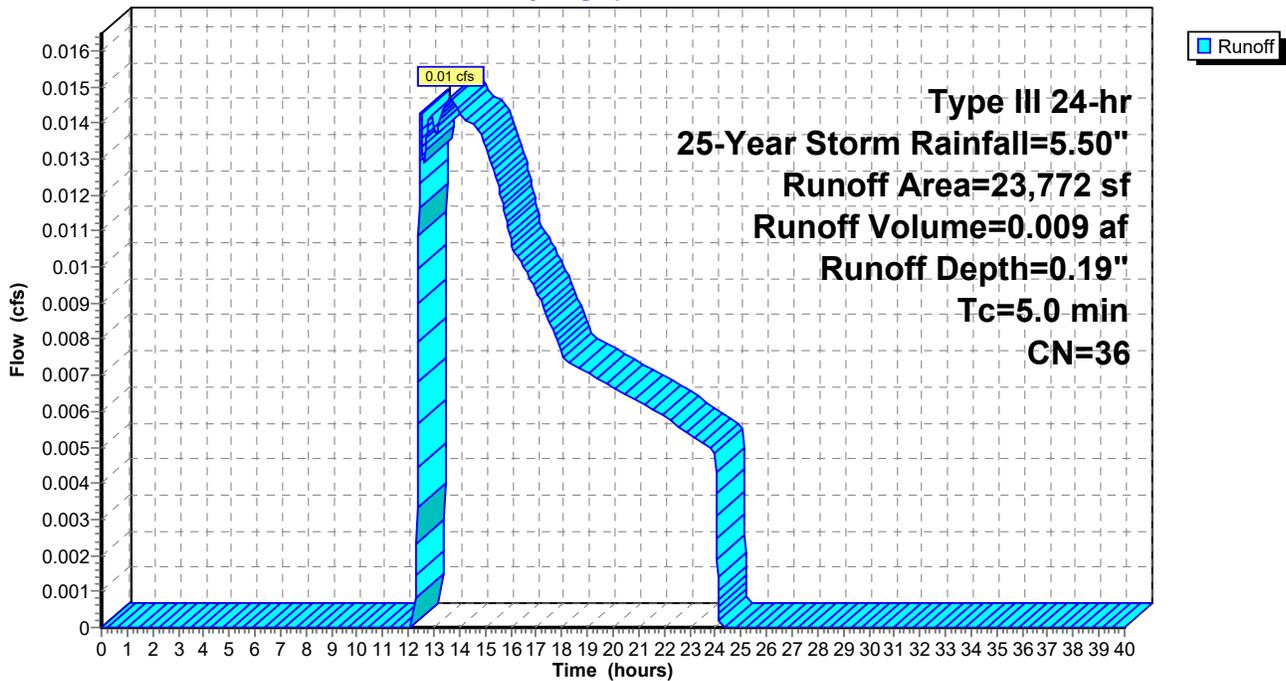
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
15,798	39	>75% Grass cover, Good, HSG A
7,974	30	Woods, Good, HSG A
23,772	36	Weighted Average
23,772		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101C:

Hydrograph



Summary for Subcatchment 102A:

Runoff = 0.33 cfs @ 12.12 hrs, Volume= 0.042 af, Depth= 0.67"
 Routed to Link DP-2 :

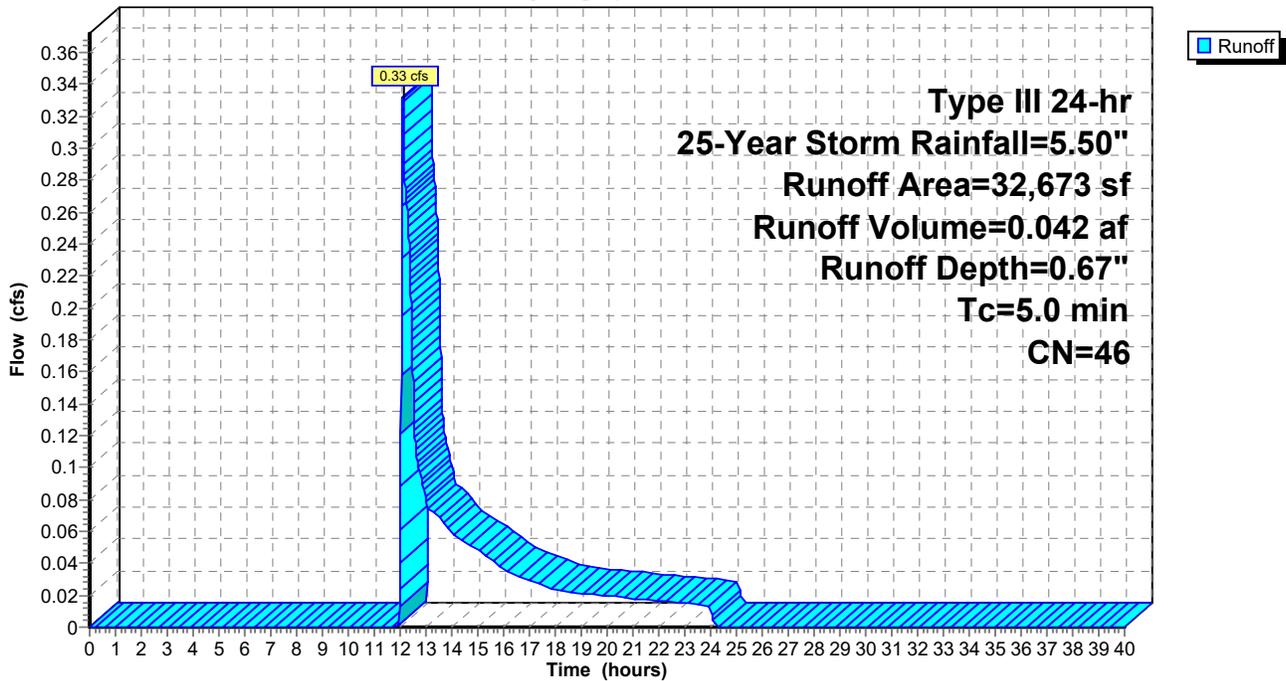
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

	Area (sf)	CN	Description
*	763	98	Roof
*	3,255	98	Track
	28,655	39	>75% Grass cover, Good, HSG A
	32,673	46	Weighted Average
	28,655		87.70% Pervious Area
	4,018		12.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 102A:

Hydrograph



Summary for Pond I-1: North Ex. Infiltration Units

[93] Warning: Storage range exceeded by 5.12'
 [58] Hint: Peaked 2.70' above defined flood level
 [85] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 1.556 ac, 25.42% Impervious, Inflow Depth = 1.57" for 25-Year Storm event
 Inflow = 2.21 cfs @ 12.07 hrs, Volume= 0.204 af
 Outflow = 1.92 cfs @ 12.13 hrs, Volume= 0.204 af, Atten= 13%, Lag= 3.7 min
 Discarded = 0.09 cfs @ 9.43 hrs, Volume= 0.134 af
 Primary = 1.83 cfs @ 12.13 hrs, Volume= 0.070 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 285.20' @ 12.13 hrs Surf.Area= 1,838 sf Storage= 2,061 cf
 Flood Elev= 282.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 105.6 min calculated for 0.204 af (100% of inflow)
 Center-of-Mass det. time= 105.6 min (886.6 - 781.0)

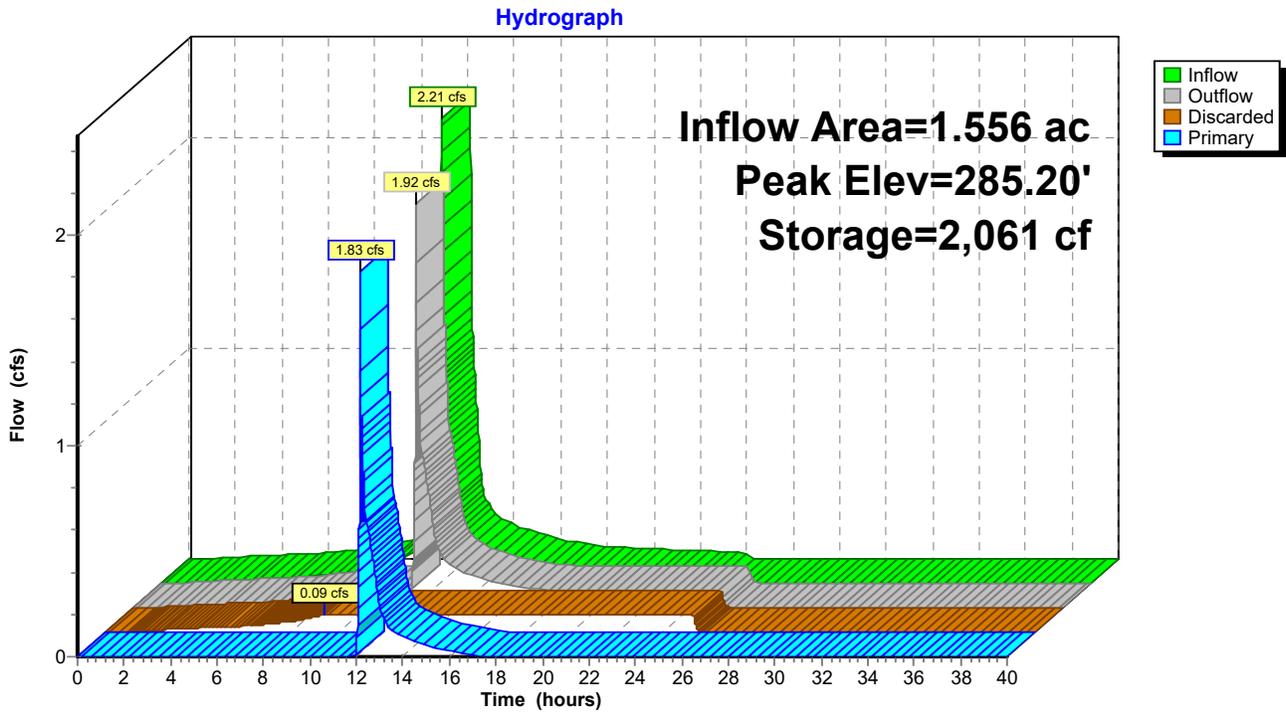
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25'L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50'L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 9.43 hrs HW=278.05' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=1.71 cfs @ 12.13 hrs HW=284.55' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 1.71 cfs @ 8.68 fps)
 ↑ **2=6" Manifold** (Passes 1.71 cfs of 8.64 cfs potential flow)

Pond I-1: North Ex. Infiltration Units



Summary for Pond I-2: South Ex. Infiltration Units

Inflow Area = 1.568 ac, 39.25% Impervious, Inflow Depth = 2.26" for 25-Year Storm event
 Inflow = 3.43 cfs @ 12.07 hrs, Volume= 0.295 af
 Outflow = 0.47 cfs @ 12.63 hrs, Volume= 0.295 af, Atten= 86%, Lag= 33.4 min
 Discarded = 0.22 cfs @ 10.86 hrs, Volume= 0.268 af
 Primary = 0.25 cfs @ 12.63 hrs, Volume= 0.027 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.44' @ 12.63 hrs Surf.Area= 4,722 sf Storage= 4,340 cf
 Flood Elev= 282.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 128.6 min calculated for 0.295 af (100% of inflow)
 Center-of-Mass det. time= 128.6 min (894.3 - 765.7)

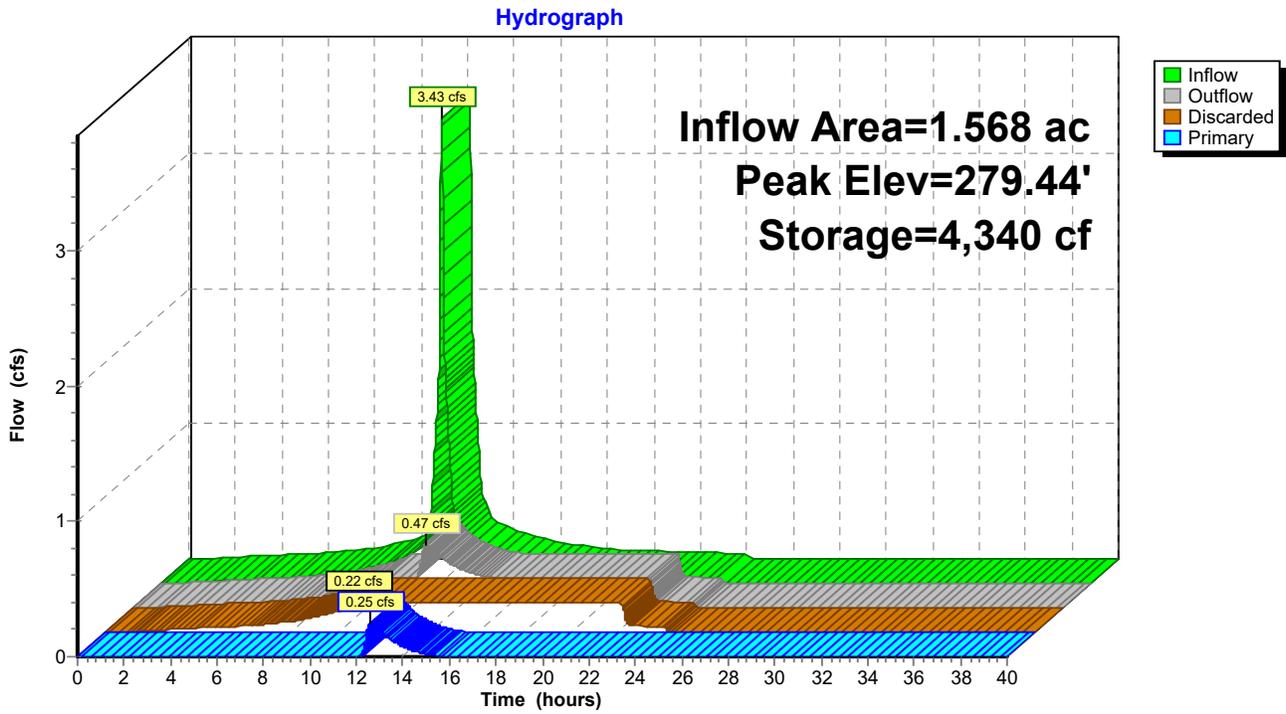
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prisma toid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prisma toid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 10.86 hrs HW=278.05' (Free Discharge)
 ↑**3=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.25 cfs @ 12.63 hrs HW=279.44' (Free Discharge)
 ↑**1=6" PVC** (Inlet Controls 0.25 cfs @ 1.62 fps)
 ↑**2=6" Manifold** (Passes 0.25 cfs of 2.50 cfs potential flow)

Pond I-2: South Ex. Infiltration Units



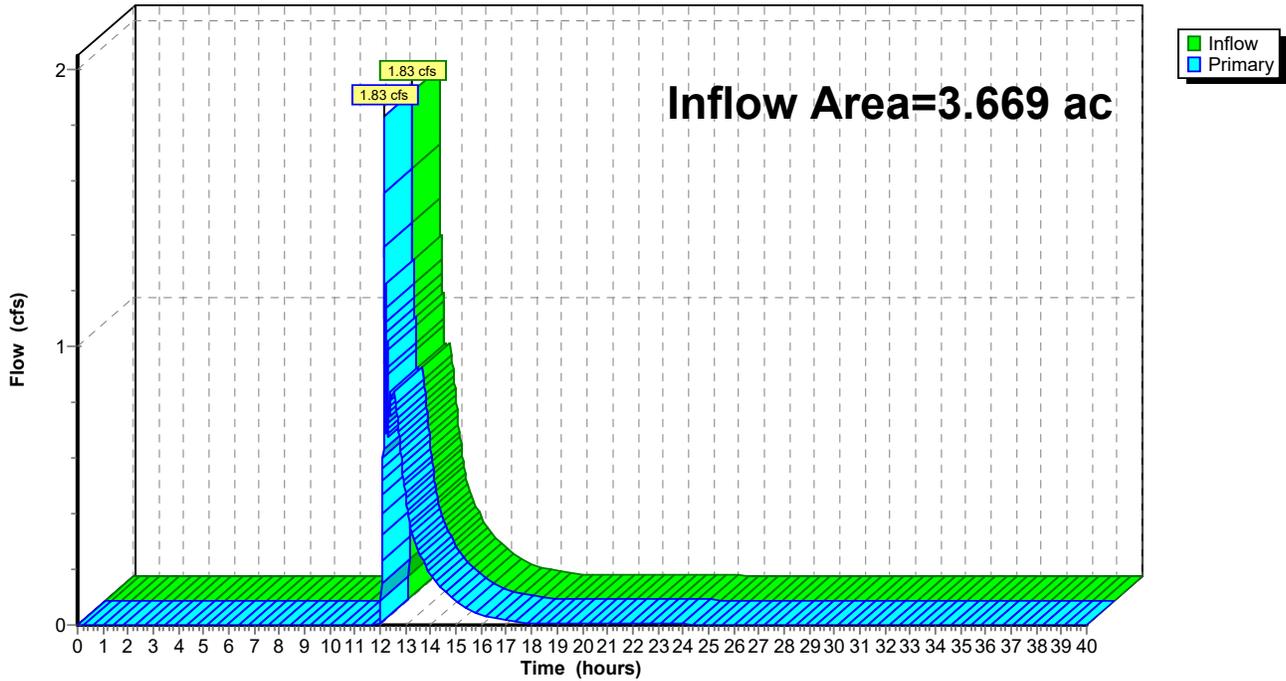
Summary for Link DP-1:

Inflow Area = 3.669 ac, 27.55% Impervious, Inflow Depth = 0.34" for 25-Year Storm event
Inflow = 1.83 cfs @ 12.13 hrs, Volume= 0.105 af
Primary = 1.83 cfs @ 12.13 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



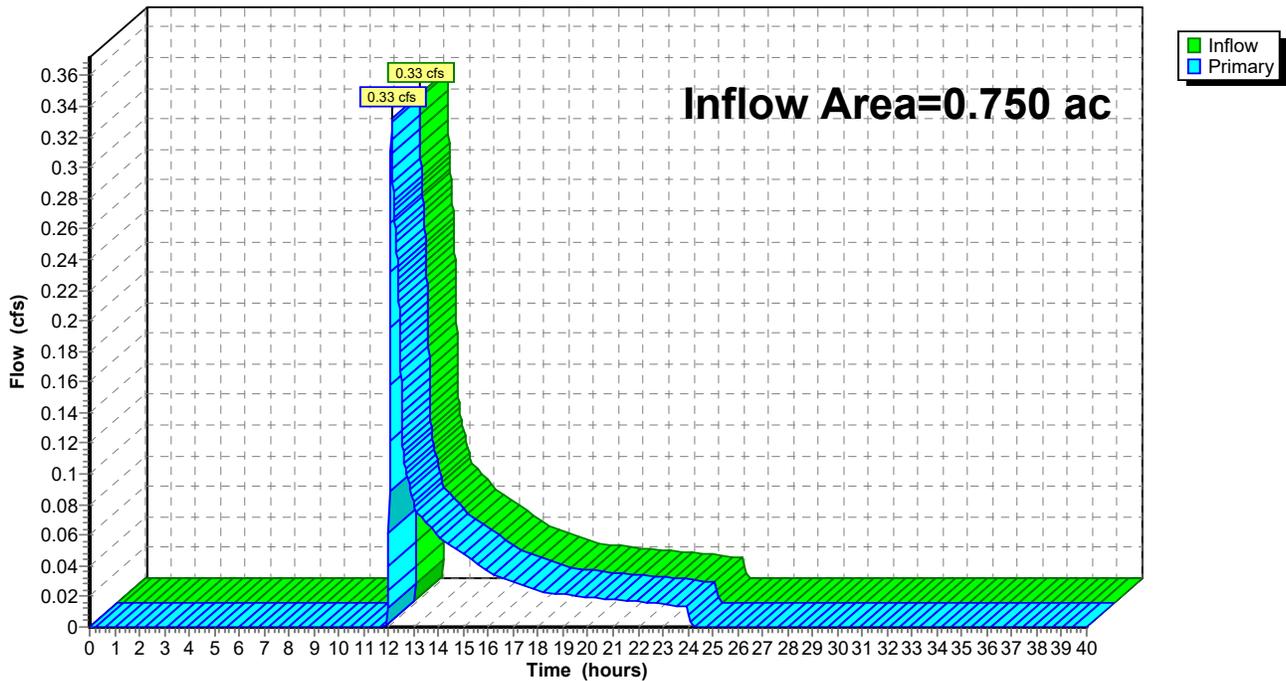
Summary for Link DP-2:

Inflow Area = 0.750 ac, 12.30% Impervious, Inflow Depth = 0.67" for 25-Year Storm event
Inflow = 0.33 cfs @ 12.12 hrs, Volume= 0.042 af
Primary = 0.33 cfs @ 12.12 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment101A-1: Runoff Area=50,538 sf 0.00% Impervious Runoff Depth=0.73"
 Flow Length=210' Tc=9.7 min CN=39 Runoff=0.42 cfs 0.071 af

Subcatchment101A-2: Runoff Area=41,487 sf 0.00% Impervious Runoff Depth=0.73"
 Flow Length=376' Tc=10.7 min CN=39 Runoff=0.34 cfs 0.058 af

Subcatchment101B-1: Runoff Area=17,224 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=2.77 cfs 0.219 af

Subcatchment101B-2: Runoff Area=26,808 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=4.32 cfs 0.342 af

Subcatchment101C: Runoff Area=23,772 sf 0.00% Impervious Runoff Depth=0.53"
 Tc=5.0 min CN=36 Runoff=0.12 cfs 0.024 af

Subcatchment102A: Runoff Area=32,673 sf 12.30% Impervious Runoff Depth=1.27"
 Tc=5.0 min CN=46 Runoff=0.90 cfs 0.080 af

Pond I-1: North Ex. Infiltration Units Peak Elev=308.89' Storage=2,061 cf Inflow=2.86 cfs 0.290 af
 Discarded=0.09 cfs 0.150 af Primary=3.40 cfs 0.141 af Outflow=3.48 cfs 0.290 af

Pond I-2: South Ex. Infiltration Units Peak Elev=284.93' Storage=5,355 cf Inflow=4.37 cfs 0.400 af
 Discarded=0.22 cfs 0.308 af Primary=1.77 cfs 0.092 af Outflow=1.99 cfs 0.400 af

Link DP-1: Inflow=3.49 cfs 0.257 af
 Primary=3.49 cfs 0.257 af

Link DP-2: Inflow=0.90 cfs 0.080 af
 Primary=0.90 cfs 0.080 af

Total Runoff Area = 4.419 ac Runoff Volume = 0.794 af Average Runoff Depth = 2.16"
75.04% Pervious = 3.316 ac 24.96% Impervious = 1.103 ac

Summary for Subcatchment 101A-1:

Runoff = 0.42 cfs @ 12.30 hrs, Volume= 0.071 af, Depth= 0.73"
 Routed to Pond I-1 : North Ex. Infiltration Units

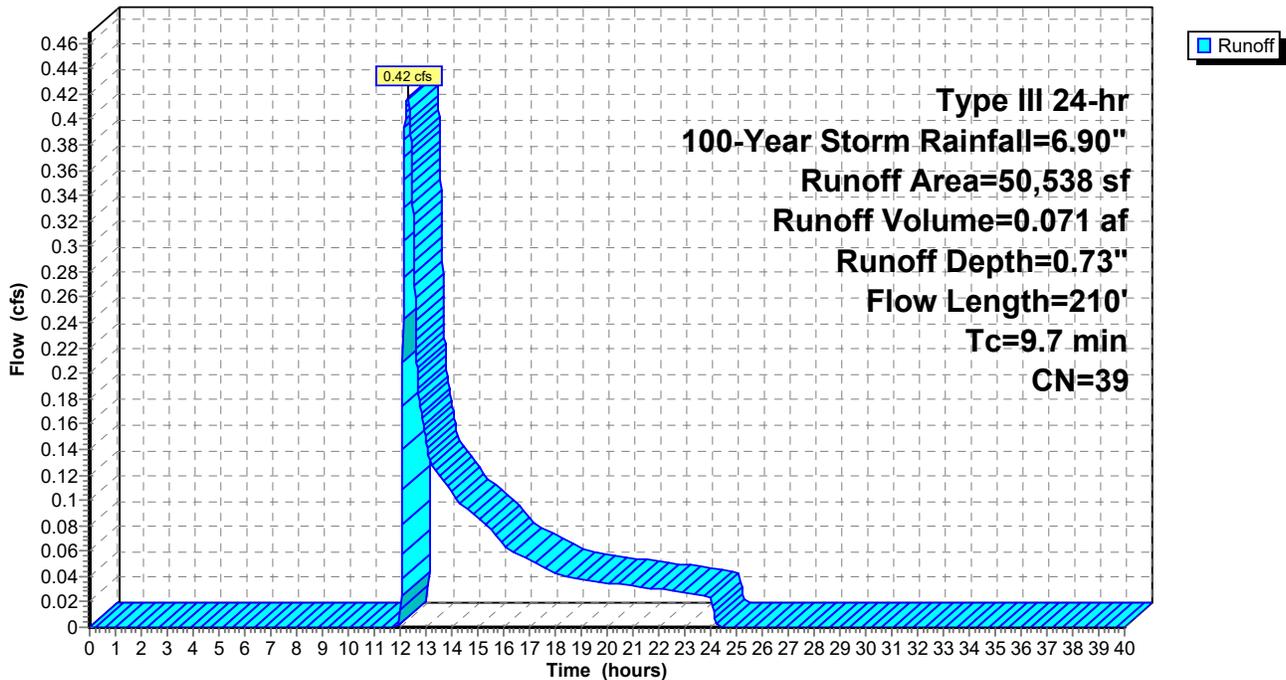
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
50,538	39	>75% Grass cover, Good, HSG A
50,538		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	108	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
9.7	210	Total			

Subcatchment 101A-1:

Hydrograph



Summary for Subcatchment 101A-2:

Runoff = 0.34 cfs @ 12.33 hrs, Volume= 0.058 af, Depth= 0.73"
 Routed to Pond I-2 : South Ex. Infiltration Units

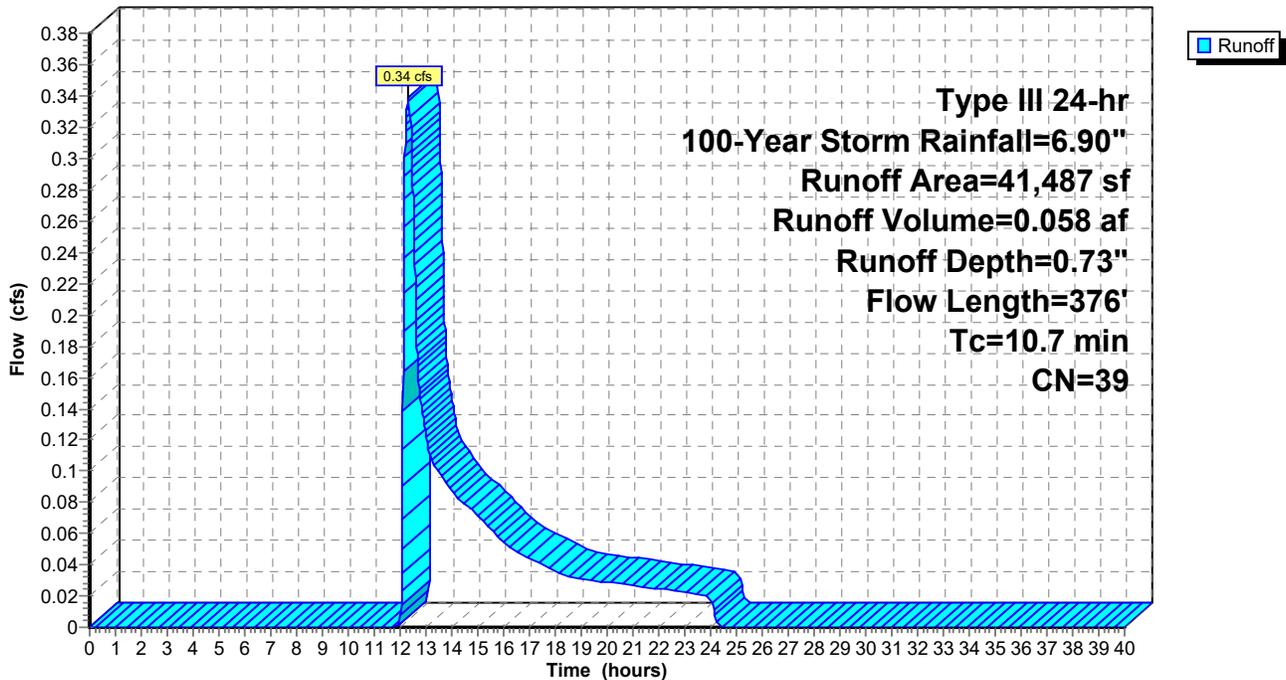
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
41,487	39	>75% Grass cover, Good, HSG A
41,487		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	60	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.4	42	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	274	0.0050	2.63	0.52	Pipe Channel, 6" pipe/trench drain 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
10.7	376	Total			

Subcatchment 101A-2:

Hydrograph



Summary for Subcatchment 101B-1:

Runoff = 2.77 cfs @ 12.07 hrs, Volume= 0.219 af, Depth= 6.66"
 Routed to Pond I-1 : North Ex. Infiltration Units

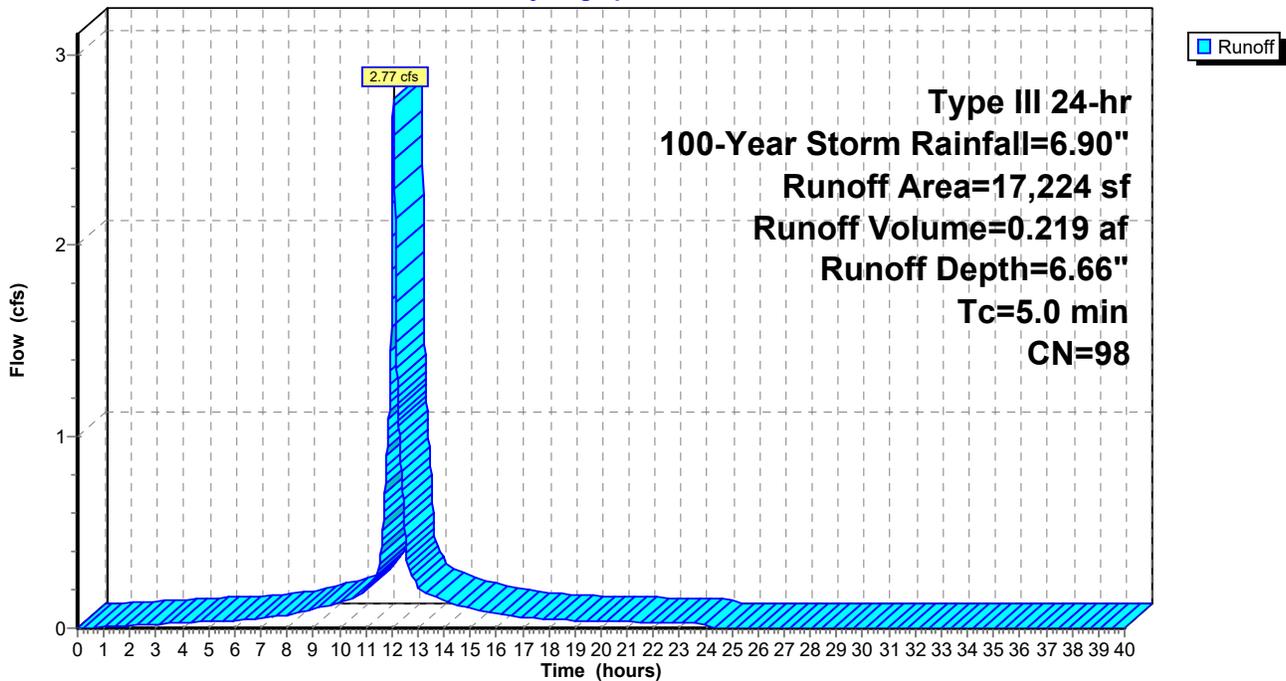
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
* 17,224	98	Track
17,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-1:

Hydrograph



Summary for Subcatchment 101B-2:

Runoff = 4.32 cfs @ 12.07 hrs, Volume= 0.342 af, Depth= 6.66"
Routed to Pond I-2 : South Ex. Infiltration Units

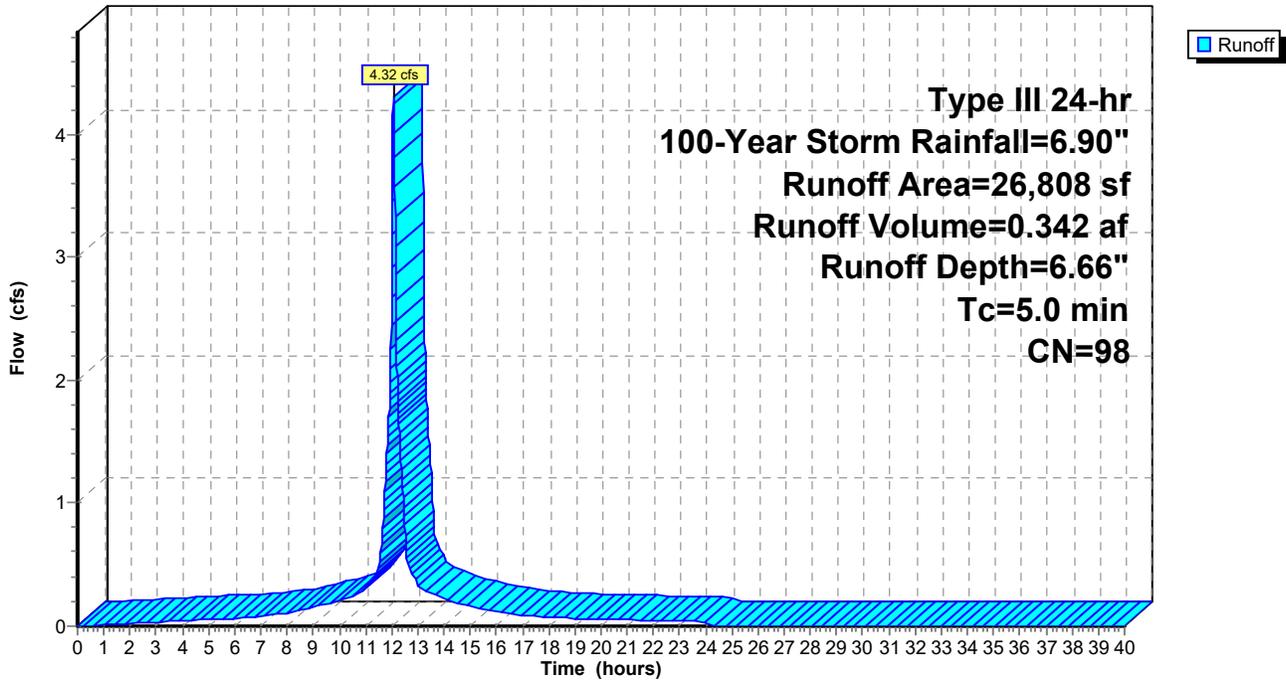
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
* 26,808	98	Track
26,808		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101B-2:

Hydrograph



Summary for Subcatchment 101C:

Runoff = 0.12 cfs @ 12.32 hrs, Volume= 0.024 af, Depth= 0.53"
 Routed to Link DP-1 :

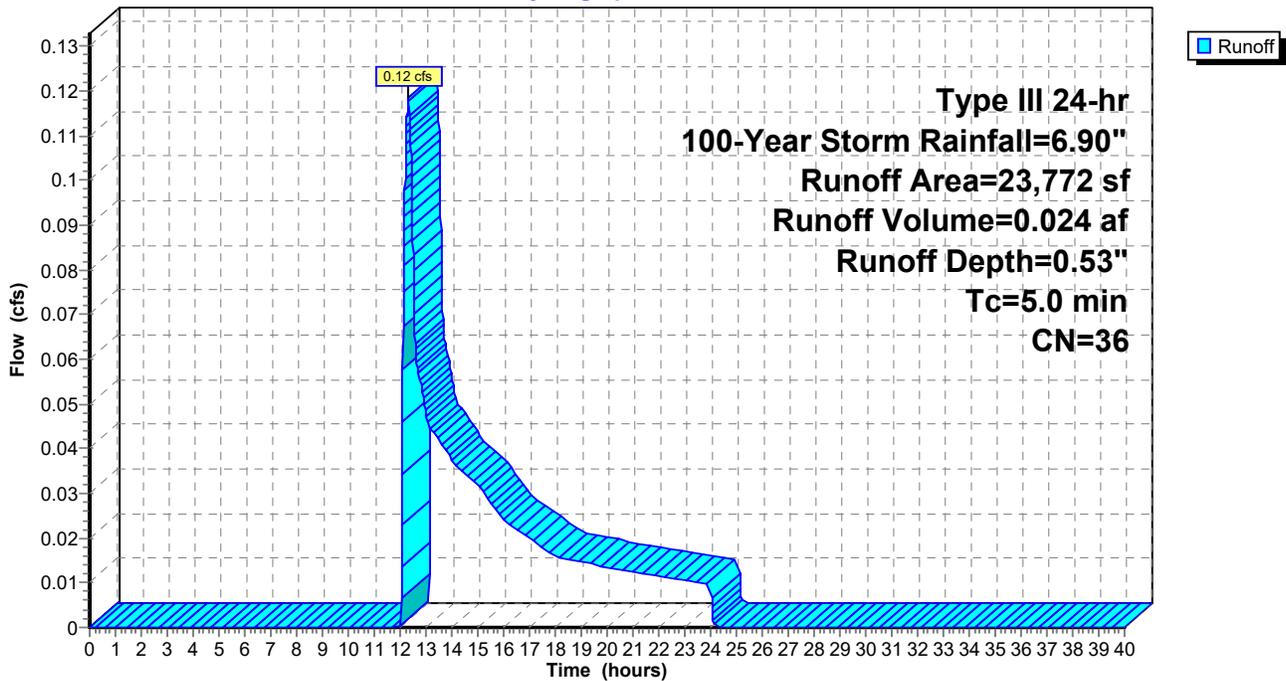
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
15,798	39	>75% Grass cover, Good, HSG A
7,974	30	Woods, Good, HSG A
23,772	36	Weighted Average
23,772		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 101C:

Hydrograph



Summary for Subcatchment 102A:

Runoff = 0.90 cfs @ 12.09 hrs, Volume= 0.080 af, Depth= 1.27"
 Routed to Link DP-2 :

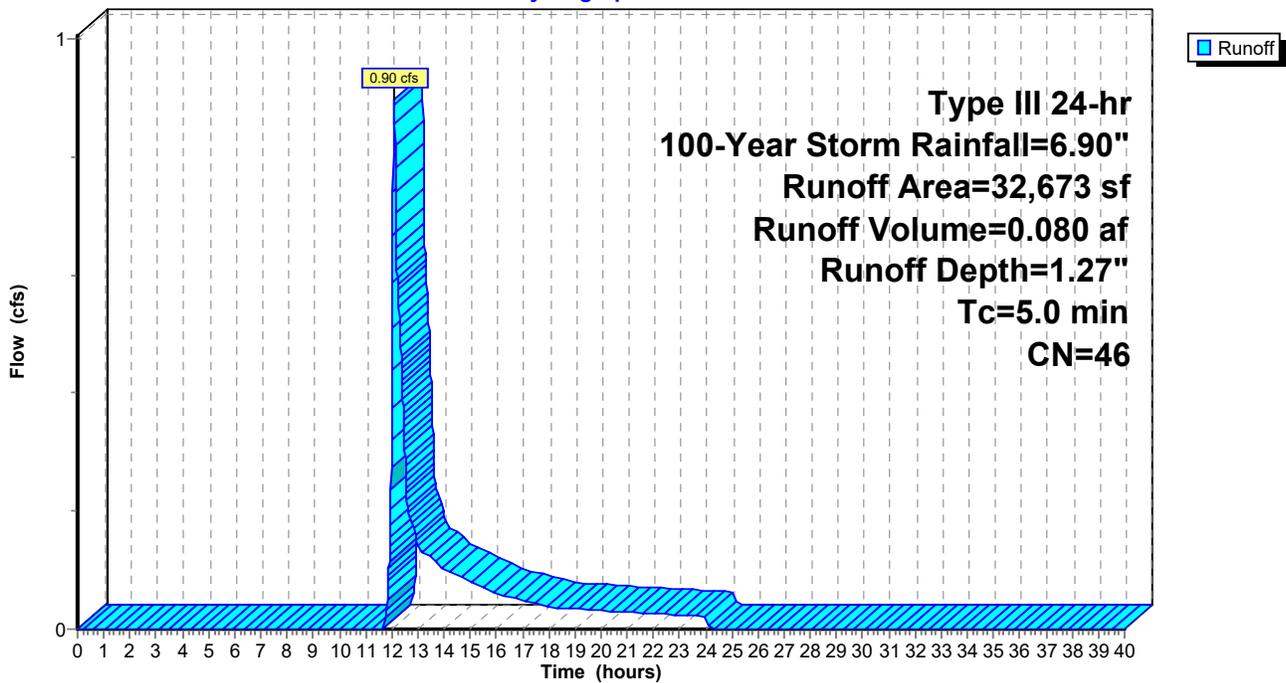
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

	Area (sf)	CN	Description
*	763	98	Roof
*	3,255	98	Track
	28,655	39	>75% Grass cover, Good, HSG A
	32,673	46	Weighted Average
	28,655		87.70% Pervious Area
	4,018		12.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 102A:

Hydrograph



Summary for Pond I-1: North Ex. Infiltration Units

[93] Warning: Storage range exceeded by 28.81'
 [58] Hint: Peaked 26.39' above defined flood level
 [88] Warning: Qout>Qin may require smaller dt or Finer Routing
 [85] Warning: Oscillations may require smaller dt or Finer Routing (severity=22)

Inflow Area = 1.556 ac, 25.42% Impervious, Inflow Depth = 2.24" for 100-Year Storm event
 Inflow = 2.86 cfs @ 12.08 hrs, Volume= 0.290 af
 Outflow = 3.48 cfs @ 12.08 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.3 min
 Discarded = 0.09 cfs @ 9.07 hrs, Volume= 0.150 af
 Primary = 3.40 cfs @ 12.08 hrs, Volume= 0.141 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 308.89' @ 12.08 hrs Surf.Area= 1,838 sf Storage= 2,061 cf
 Flood Elev= 282.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 97.7 min calculated for 0.290 af (100% of inflow)
 Center-of-Mass det. time= 97.6 min (887.2 - 789.6)

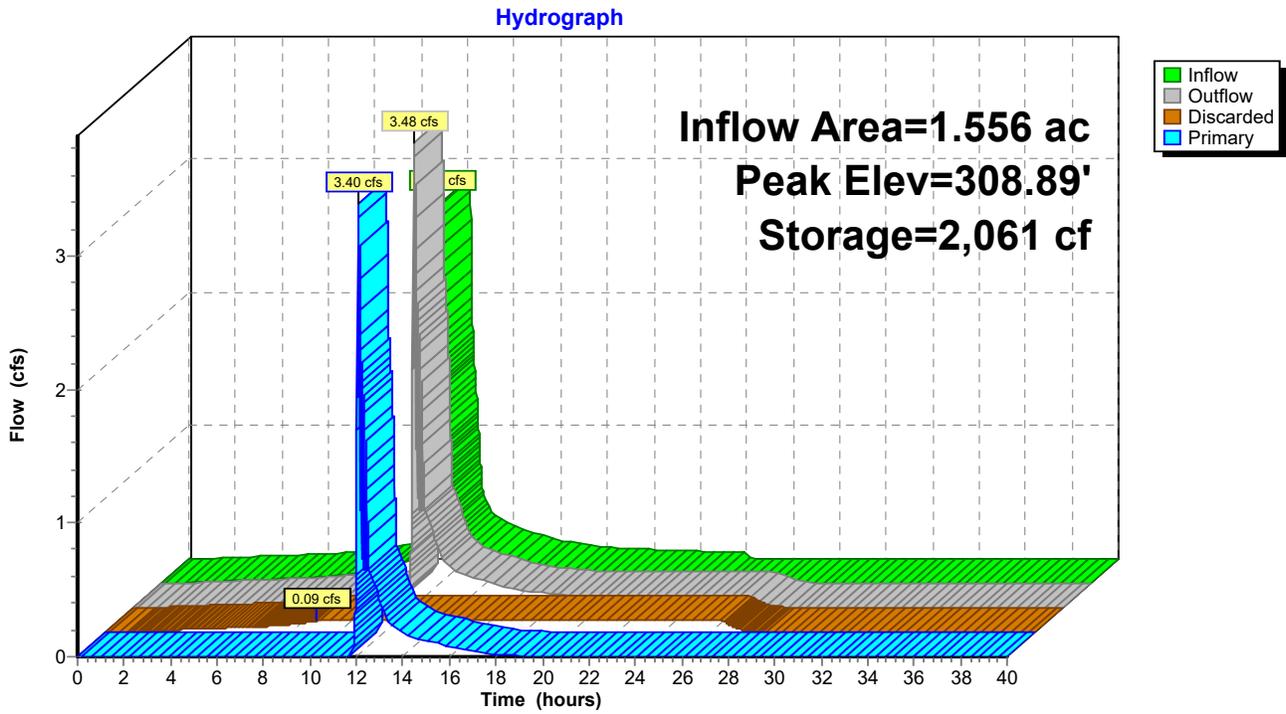
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25'L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50'L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 9.07 hrs HW=278.25' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=3.39 cfs @ 12.08 hrs HW=308.75' (Free Discharge)
 ↑ **1=6" PVC** (Barrel Controls 3.39 cfs @ 17.26 fps)
 ↑ **2=6" Manifold** (Passes 3.39 cfs of 20.51 cfs potential flow)

Pond I-1: North Ex. Infiltration Units



Summary for Pond I-2: South Ex. Infiltration Units

[93] Warning: Storage range exceeded by 4.85'
 [58] Hint: Peaked 2.43' above defined flood level
 [85] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 1.568 ac, 39.25% Impervious, Inflow Depth = 3.06" for 100-Year Storm event
 Inflow = 4.37 cfs @ 12.07 hrs, Volume= 0.400 af
 Outflow = 1.99 cfs @ 12.38 hrs, Volume= 0.400 af, Atten= 54%, Lag= 18.5 min
 Discarded = 0.22 cfs @ 10.29 hrs, Volume= 0.308 af
 Primary = 1.77 cfs @ 12.38 hrs, Volume= 0.092 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 284.93' @ 12.38 hrs Surf.Area= 4,722 sf Storage= 5,355 cf
 Flood Elev= 282.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 121.4 min calculated for 0.400 af (100% of inflow)
 Center-of-Mass det. time= 121.4 min (892.0 - 770.6)

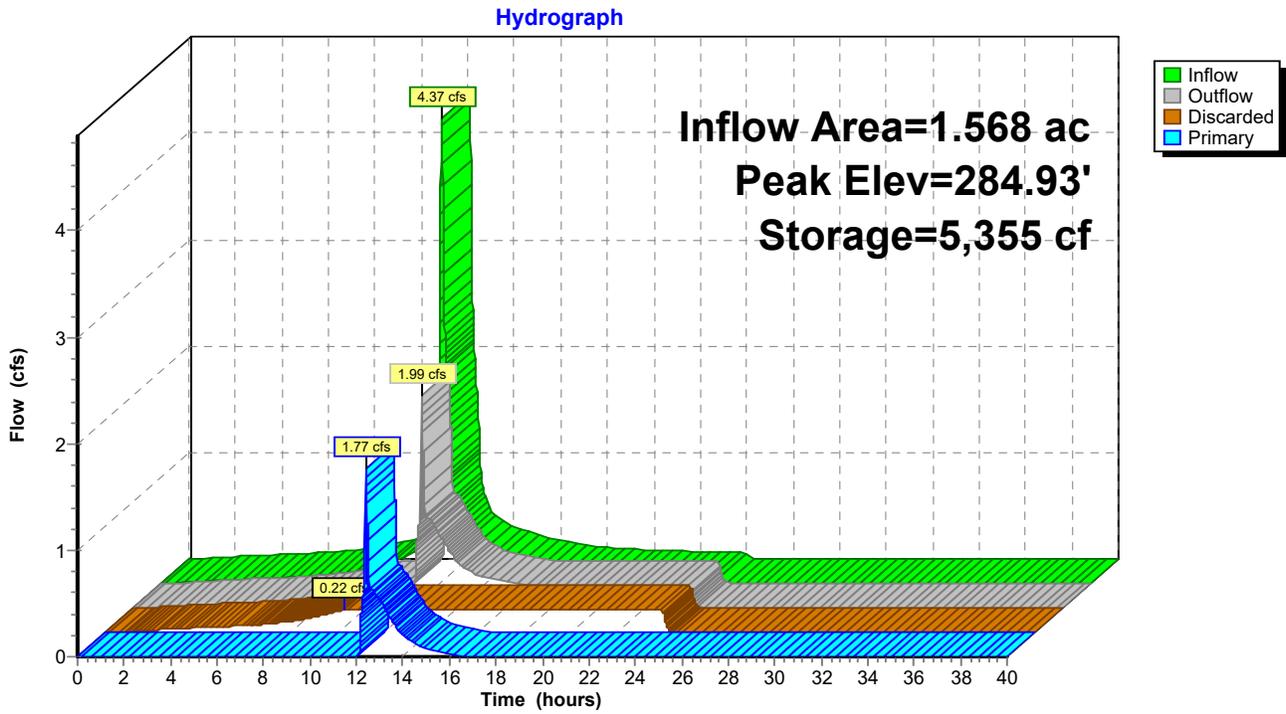
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prismatoid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prismatoid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 10.29 hrs HW=278.05' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=1.72 cfs @ 12.38 hrs HW=284.63' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 1.72 cfs @ 8.75 fps)
 ↑ **2=6" Manifold** (Passes 1.72 cfs of 17.41 cfs potential flow)

Pond I-2: South Ex. Infiltration Units



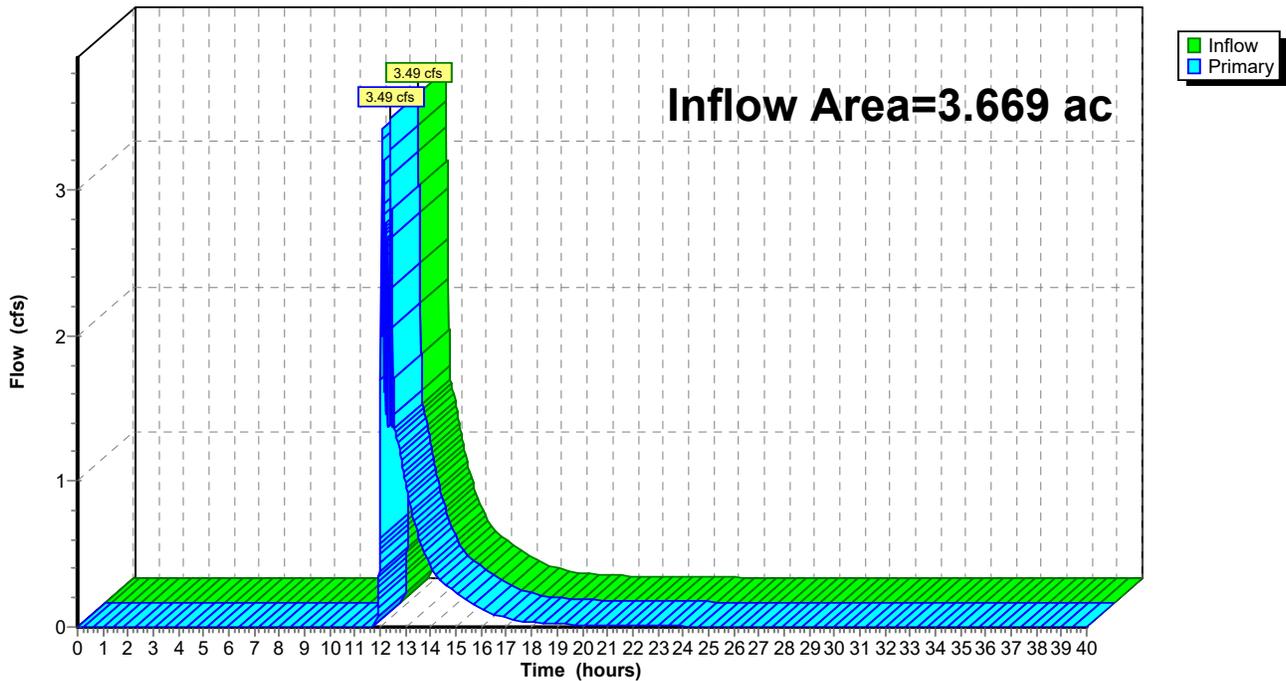
Summary for Link DP-1:

Inflow Area = 3.669 ac, 27.55% Impervious, Inflow Depth = 0.84" for 100-Year Storm event
Inflow = 3.49 cfs @ 12.38 hrs, Volume= 0.257 af
Primary = 3.49 cfs @ 12.38 hrs, Volume= 0.257 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



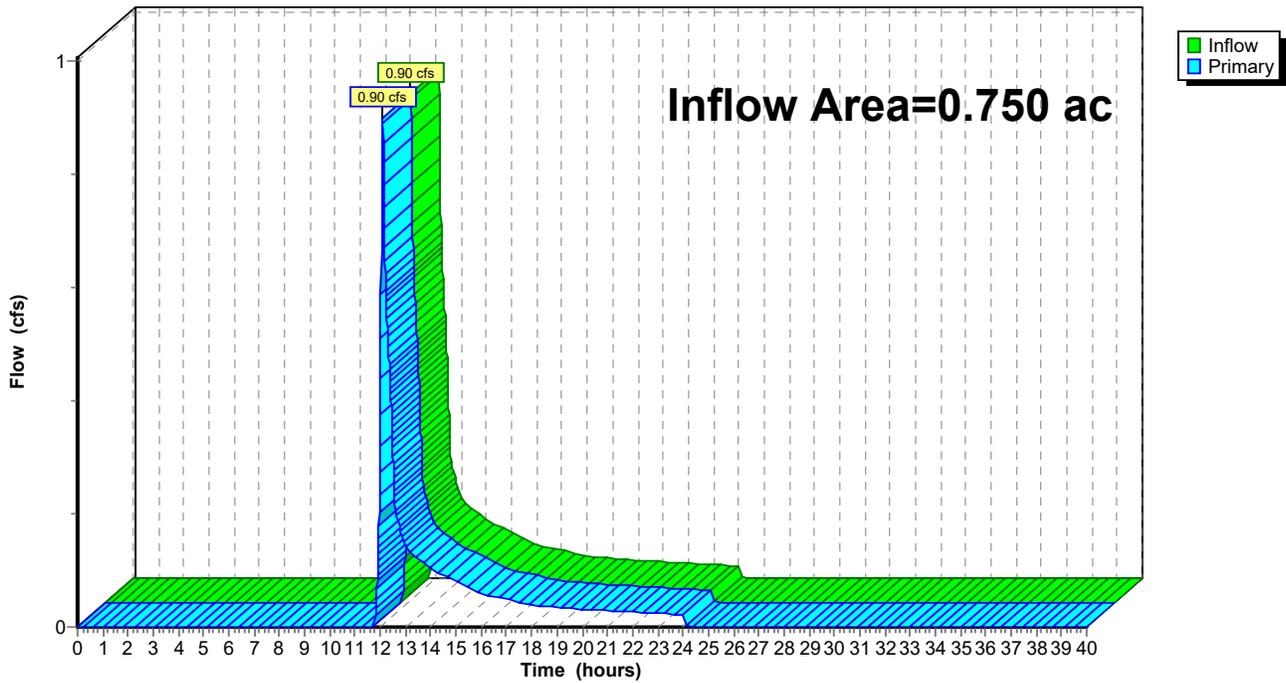
Summary for Link DP-2:

Inflow Area = 0.750 ac, 12.30% Impervious, Inflow Depth = 1.27" for 100-Year Storm event
Inflow = 0.90 cfs @ 12.09 hrs, Volume= 0.080 af
Primary = 0.90 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



INFILTRATOR[®]

SYSTEMS INC

B. System Sizing

1. General

The INFILTRATOR[™] chamber can be utilized as a storm water system in either a trench or bed configuration depending on the design requirements. Infiltrator Systems Inc. recommends, whenever possible, to design chamber systems in a single layer to take advantage of soil depth to groundwater and increased soil interface area for infiltration. On sites where it is necessary to maximize storage, INFILTRATOR[™] chambers may be placed two or three layers deep with stone or gravel between the layers. Illustrations of some typical design examples can be seen in Appendix D. INFILTRATOR[™] chambers are available with an AASHTO rating of either H-10 or H-20. The H-10 unit is typically installed in non-traffic areas and can support H-10 loads (16,000 lbs/axle) with 12" of cover. The high strength H-20 unit (32,000 lbs per axle) allows for shallow installation under paved traffic areas with only 18" of cover. Appendix D. has standard details of single and double layer beds with H-10 and H-20 installations.

The length of the trench required or the bed area needed can be easily calculated when given the proper storage volumes for INFILTRATOR[™] chambers. The following chart indicates the storage volume for INFILTRATOR[™] leaching chambers.

NOTE: The Standard INFILTRATOR[™] chamber is primarily designed for septic system leachfields.

STORAGE VOLUME

Type	Ft ³ /ft	Ft ³ /unit	Gal/unit
Standard INFILTRATOR [™]	1.65	10.3	77
High Capacity INFILTRATOR [™]	2.60	16.3	122

Examples of typical calculations for bed systems combining stone and INFILTRATOR[™] chambers are shown in the attached Appendix A.

The first step in sizing an INFILTRATOR[™] chamber system is determining a total volume of storage needed to handle the design flow. The design flow must be determined using proper hydrologic techniques and following local guidelines and regulations. Once the designer has calculated the total runoff volume, the site must be analyzed and a layer depth must be determined. The following chart is taken from Appendix B. and breaks down the various storage volumes for each layered system.

STORAGE VOLUME WITH STONE
(High Capacity)

Total Storage (ft)	1 Layer	2 Layer	3 Layer
ft ³ /ft	3.50	7.00	10.52
ft ³ /ft ²	1.24	2.47	3.72

NOTE: Calculations are based on a stone void ratio of 35%

A quick and easy way to get the total number of INFILTRATOR[™] units needed is to divide the total storage volume required (ft³) by 22 ft³ per unit with stone.



Fuss & O'Neill Inc. *Consulting Engineers*

146 Hartford Road, Manchester, CT 06040-5921
TEL (860) 646-2469 FAX (860) 643-6313

78 Interstate Drive, West Springfield, MA 01089
TEL (413) 452-0445 FAX (413) 846-0497

SHOP DRAWING REVIEW		PROJECT #: 95-057-S20
ENGINEER'S REVIEW	RESPONSE REQUIRED OF CONTRACTOR	PROJECT TITLE: WESTMINSTER TRACK
FURNISH AS SUBMITTED <input type="checkbox"/>	NONE <input type="checkbox"/>	SUBMITTAL #:
FURNISH AS NOTED <input checked="" type="checkbox"/>	CONFIRM <input checked="" type="checkbox"/>	
REJECTED <input type="checkbox"/>	RESUBMIT <input type="checkbox"/>	
<p>ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURES THEREFROM. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY, AND FOR PERFORMING HIS WORK IN A SAFE MANNER.</p> <p>FUSS & O'NEILL, INC., ENGINEERS BY <u>Andrew West</u> DATE <u>6/23/02</u></p>		ITEMS: Hancor Envirochambers
COMMENTS: System was designed using infiltrator units. Hancor units are 5.5" wider than infiltrator units and have a higher invert. It is the contractor's responsibility to adjust the pipe or unit inverts and to make sure that the extra width of these units can be accommodated while maintaining proper spacing between units as recommended by the manufacturer. Confirm that units will accept 4" PVC manifold pipes.		

Cost-Effective Solutions for On-Site Systems

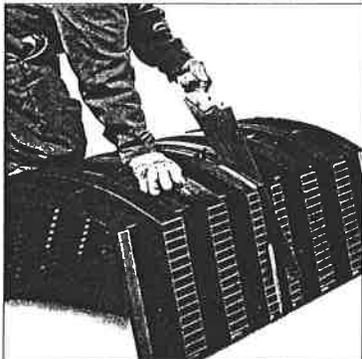
Hancor[®]
EnviroChamber[™]
Chamber Units for On-Site Systems



THE JACK FARRELLY CO.

97 Old Poquonock Road
Bloomfield, Connecticut 06002
(860) 243-9714
1-800-423-0112

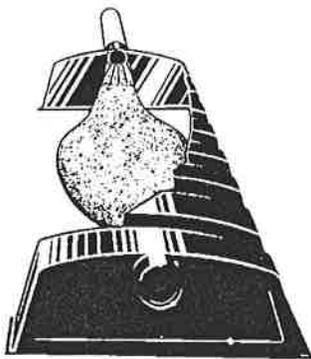
Cost-Effective Solutions



- **Two-for-One Chamber***
EnviroChamber units can be divided in two by cutting on the center line, so half-chambers can be used to complete a trench. Saves time, reduces additional excavation costs, and eliminates using more product than is necessary.
- **Snap-on EqualFlo™ End Plate**
Eliminates need for screws and power tools, saving time and labor.
- **Fast and Easy Installation**
Lightweight, strong high-density polyethylene means no heavy equipment is needed, and installation is faster.
- **Unique Rib Design**
Strong, innovative rib design requires less backfill material, saving material and labor costs.

* Patent pending

Designed-In Benefits



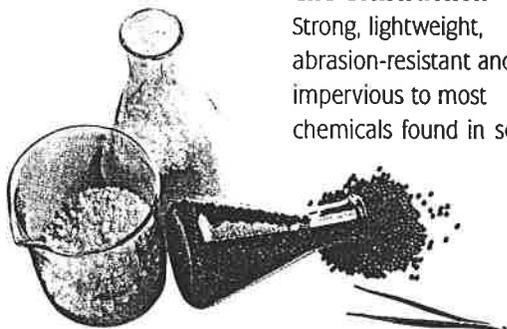
- **New Equal Distribution System**
The unique end plate design allows more equal distribution of effluent from the distribution pipe into the first chamber. The EqualFlo™ distribution end plate minimizes scouring and erosion at the inlet area.
- **Chamber Design Benefits**
Solid top prevents water and soil intrusion, while open bottom means no stone masking. No filter fabric is required.
- **Gravelless System**
Eliminates stone masking, stone clean-up, and minimizes landscape damage. And there's no need to wait for gravel delivery trucks.
- **Unique Sidewall Design**
Louvers are set at a 30° angle to help prevent soil intrusion. The end portion of the sidewall is closed off to help avoid soil intrusion through open louvers. Studies have shown that increased sidewall area enhances treatment by allowing more oxygen transfer through the soil for efficient biomat formation.
- **H-10 or H-20 Load Rated**
Meets and exceeds load requirements.

THE JACK FARRELLY CO.

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(860) 243-9714
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Value-Added Benefits

- **High Density Polyethylene Construction**
Strong, lightweight, abrasion-resistant and impervious to most chemicals found in sewage.
- **Made of 100% Recycled Materials**
Allows use of an environmentally-friendly product.
- **Five-Year Warranty**
EnviroChamber units are warranted against defective materials and workmanship for **five** years.**



** See complete warranty on back for details.

Easy Steps for Installation*

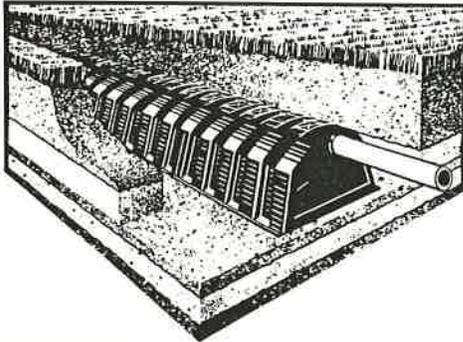


- Excavate trench to required width and depth; level surface. Clear away any large stones or roots. Scour sidewall areas, if necessary.
- Install EnviroChamber units on trench bottom and snap together
- Install end plate and distribution pipe (pipe does not extend beyond end plate).
- Complete backfill operations.

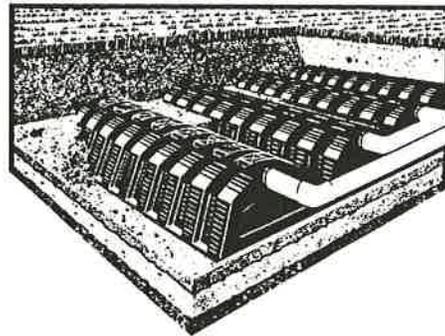
* See EnviroChamber unit Installation Instructions. This product is solely intended for the conveyance of fluids. Access into this product for maintenance, inspection, or other reason should be done in strict accordance with OSHA recommendations for confined space entry.

System Configurations

Trench



Bed



Compare the EnviroChamber Unit Advantages

	EnviroChamber™ Unit (H-10 or H-20)	Advantage* (%)	Infiltrator™ Chamber	Bio Diffuser™ Chamber	
STANDARD	Size	12"x34"x75"	12"x34"x75"	11"x34"x75"	
	Sidewall	8"	+33%	6"	6.5"
	Capacity	87 gal.	+13%	77 gal.	N/A
	Invert Height	8"	+14%	7"	6.5"
HI-CAPACITY	Size	17.5"x34"x75"	16"x34"x75"	14"x34"x75"	
	Sidewall	14.5"	+32%	11"	9.5"
	Capacity	138 gal.	+13%	122 gal.	N/A
	Invert Height	14"	+27%	11"	9"

* Compared to Infiltrator chambers

THE JACK FARRELLY CO.

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Infiltrator™ is a trademark of Infiltrator Systems Inc.
Bio Diffuser™ is a trademark of PSA, Inc.

Five Year Limited Warranty

(a) THE STRUCTURAL INTEGRITY OF EACH ENVIROCHAMBER™ UNIT, WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, IS WARRANTED TO THE ORIGINAL PURCHASER AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR FIVE YEARS FROM DATE OF MANUFACTURE. SHOULD A DEFECT APPEAR WITHIN THE WARRANTY PERIOD, PURCHASER MUST INFORM HANCOR, INC. OF THE DEFECT WITHIN FIFTEEN (15) DAYS. HANCOR, INC. WILL SUPPLY A REPLACEMENT CHAMBER. HANCOR, INC.'S LIABILITY SPECIFICALLY EXCLUDES THE COST OF REMOVAL AND/OR INSTALLATION OF THE CHAMBERS.

(b) THE WARRANTY IN SUBPARAGRAPH (a) IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE CHAMBERS, INCLUDING NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTY DOES NOT EXTEND TO PUNITIVE, EXEMPLARY, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. THE COMPANY SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS, LABOR AND MATERIALS, OVERHEAD COSTS, OR OTHER

LOSS OR EXPENSE INCURRED BY BUYER. SPECIFICALLY EXCLUDED FROM WARRANTY COVERAGE ARE: DEFECTS OR DAMAGE TO THE CHAMBERS DUE TO UNAUTHORIZED USE; ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, INSTALLATION ERROR, ABUSE OR NEGLIGENCE OF THE CHAMBERS; THE CHAMBERS BEING SUBJECTED TO STRESSES GREATER THAN THOSE PRESCRIBED IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT BY BUYER OF IMPROPER MATERIALS INTO BUYER'S SYSTEM; OR ANY OTHER EVENT NOT CAUSED BY THE COMPANY.

FURTHERMORE, IN NO EVENT SHALL THE COMPANY BE RESPONSIBLE FOR ANY LOSS OR DAMAGE TO THE BUYER, THE CHAMBERS OR ANY THIRD PARTY RESULTING FROM ITS INSTALLATION OR SHIPMENT. BUYER SHALL BE SOLELY RESPONSIBLE FOR ENSURING THAT INSTALLATION OF THE SYSTEM IS COMPLETED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, RULES AND REGULATIONS.

(c) NO REPRESENTATIVE OF THE COMPANY HAS THE AUTHORITY TO CHANGE THIS WARRANTY IN ANY MANNER WHATSOEVER, OR TO EXTEND THIS WARRANTY. NO WARRANTY APPLIES TO ANY PARTY OTHER THAN TO THE ORIGINAL BUYER.

Hancor ... Offering a Full Line of Products for On-Site Waste Management



Sewage Ejector Sumps



Norwesco™ Septic Tanks



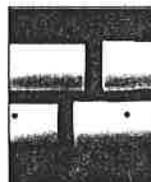
Gravelless Pipe



Distribution Sumps



Distribution Boxes



Co-Extruded Smoothwall
Sewer & Drain Pipe



Alternator Valves

For Distributor's Use:

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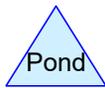
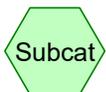
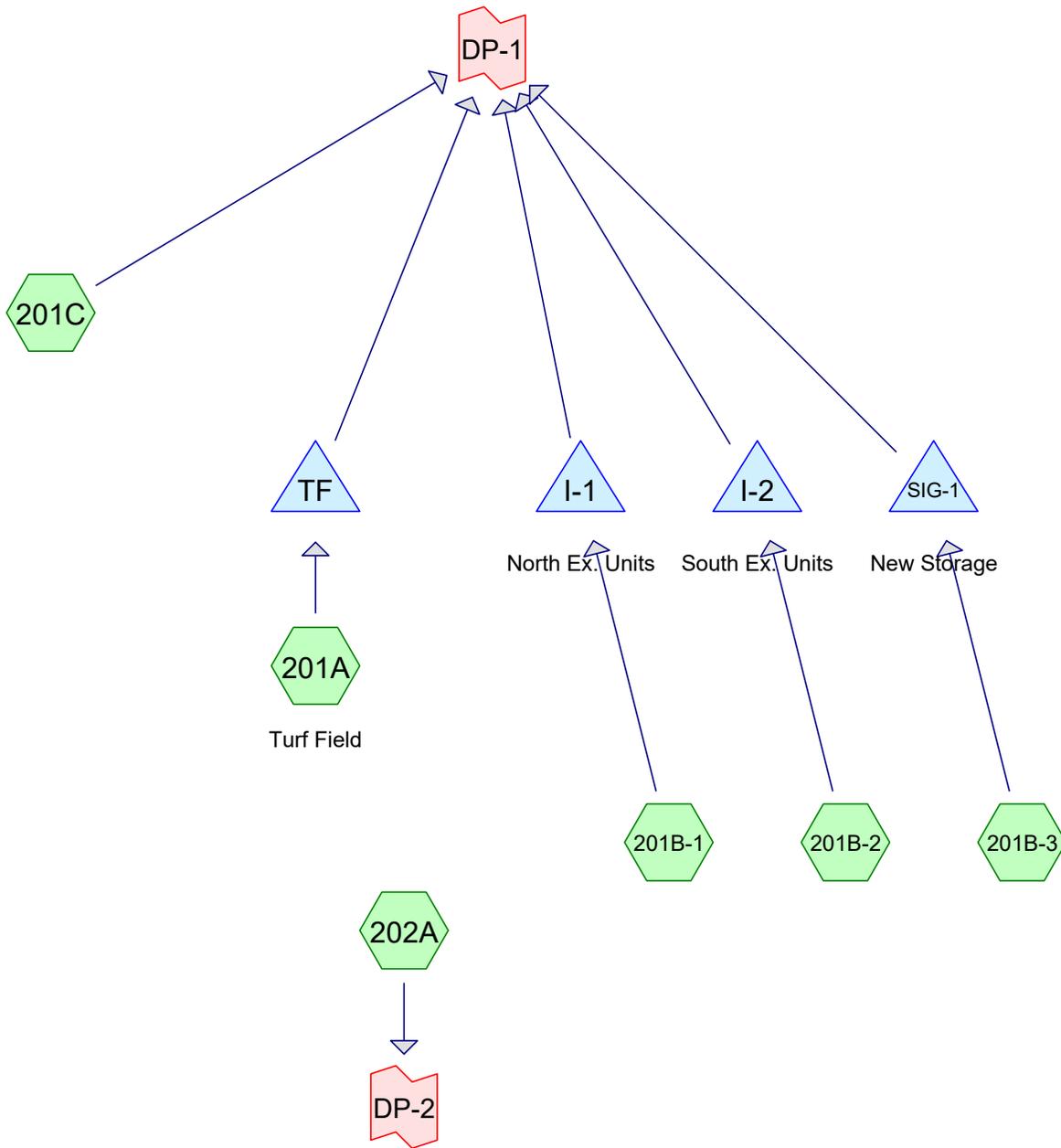


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#1201



21263_POST

Prepared by SMRT

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year Storm	Type III 24-hr		Default	24.00	1	3.20	2
2	10-Year Storm	Type III 24-hr		Default	24.00	1	4.70	2
3	25-Year Storm	Type III 24-hr		Default	24.00	1	5.50	2
4	100-Year Storm	Type III 24-hr		Default	24.00	1	6.90	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.477	39	>75% Grass cover, Good, HSG A (201C, 202A)
0.020	98	Concrete Pavement (201C)
0.107	98	Concrete Sidewalk (201B-1, 201B-2, 201B-3)
0.005	98	Filming Tower (202A)
0.020	98	Roof (201C)
1.467	98	Track (201B-1, 201B-2, 201B-3)
2.030	98	Turf Field (201A)
0.011	30	Woods, Good, HSG A (201C)
4.136	91	TOTAL AREA

21263_POST

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Page 4

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.488	HSG A	201C, 202A
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
3.648	Other	201A, 201B-1, 201B-2, 201B-3, 201C, 202A
4.136		TOTAL AREA

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Page 5

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.477	0.000	0.000	0.000	0.000	0.477	>75% Grass cover, Good	201C, 202A
0.000	0.000	0.000	0.000	0.020	0.020	Concrete Pavement	201C
0.000	0.000	0.000	0.000	0.107	0.107	Concrete Sidewalk	201B-1, 201B-2, 201B-3
0.000	0.000	0.000	0.000	0.005	0.005	Filming Tower	202A
0.000	0.000	0.000	0.000	0.020	0.020	Roof	201C
0.000	0.000	0.000	0.000	1.467	1.467	Track	201B-1, 201B-2, 201B-3
0.000	0.000	0.000	0.000	2.030	2.030	Turf Field	201A
0.011	0.000	0.000	0.000	0.000	0.011	Woods, Good	201C
0.488	0.000	0.000	0.000	3.648	4.136	TOTAL AREA	

21263_POST

Type III 24-hr 2-Year Storm Rainfall=3.20"

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Page 6

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment201A: Turf Field Runoff Area=88,424 sf 100.00% Impervious Runoff Depth=2.97"
 Tc=5.0 min CN=98 Runoff=6.53 cfs 0.502 af

Subcatchment201B-1: Runoff Area=15,166 sf 100.00% Impervious Runoff Depth=2.97"
 Tc=5.0 min CN=98 Runoff=1.12 cfs 0.086 af

Subcatchment201B-2: Runoff Area=28,876 sf 100.00% Impervious Runoff Depth=2.97"
 Tc=5.0 min CN=98 Runoff=2.13 cfs 0.164 af

Subcatchment201B-3: Runoff Area=24,513 sf 100.00% Impervious Runoff Depth=2.97"
 Tc=5.0 min CN=98 Runoff=1.81 cfs 0.139 af

Subcatchment201C: Runoff Area=6,349 sf 27.28% Impervious Runoff Depth=0.22"
 Tc=5.0 min CN=54 Runoff=0.01 cfs 0.003 af

Subcatchment202A: Runoff Area=16,840 sf 1.28% Impervious Runoff Depth=0.00"
 Tc=5.0 min CN=40 Runoff=0.00 cfs 0.000 af

Pond I-1: North Ex. Units Peak Elev=279.14' Storage=1,384 cf Inflow=1.12 cfs 0.086 af
 Discarded=0.09 cfs 0.085 af Primary=0.01 cfs 0.001 af Outflow=0.09 cfs 0.086 af

Pond I-2: South Ex. Units Peak Elev=278.76' Storage=2,345 cf Inflow=2.13 cfs 0.164 af
 Discarded=0.22 cfs 0.164 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.164 af

Pond SIG-1: New Storage Peak Elev=279.01' Storage=1,914 cf Inflow=1.81 cfs 0.139 af
 Discarded=0.20 cfs 0.139 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.139 af

Pond TF: Peak Elev=280.54' Storage=1,133 cf Inflow=6.53 cfs 0.502 af
 Discarded=4.09 cfs 0.502 af Primary=0.00 cfs 0.000 af Outflow=4.09 cfs 0.502 af

Link DP-1: Inflow=0.02 cfs 0.003 af
 Primary=0.02 cfs 0.003 af

Link DP-2: Inflow=0.00 cfs 0.000 af
 Primary=0.00 cfs 0.000 af

Total Runoff Area = 4.136 ac Runoff Volume = 0.894 af Average Runoff Depth = 2.59"
11.79% Pervious = 0.488 ac 88.21% Impervious = 3.648 ac

Summary for Subcatchment 201A: Turf Field

Runoff = 6.53 cfs @ 12.07 hrs, Volume= 0.502 af, Depth= 2.97"
 Routed to Pond TF :

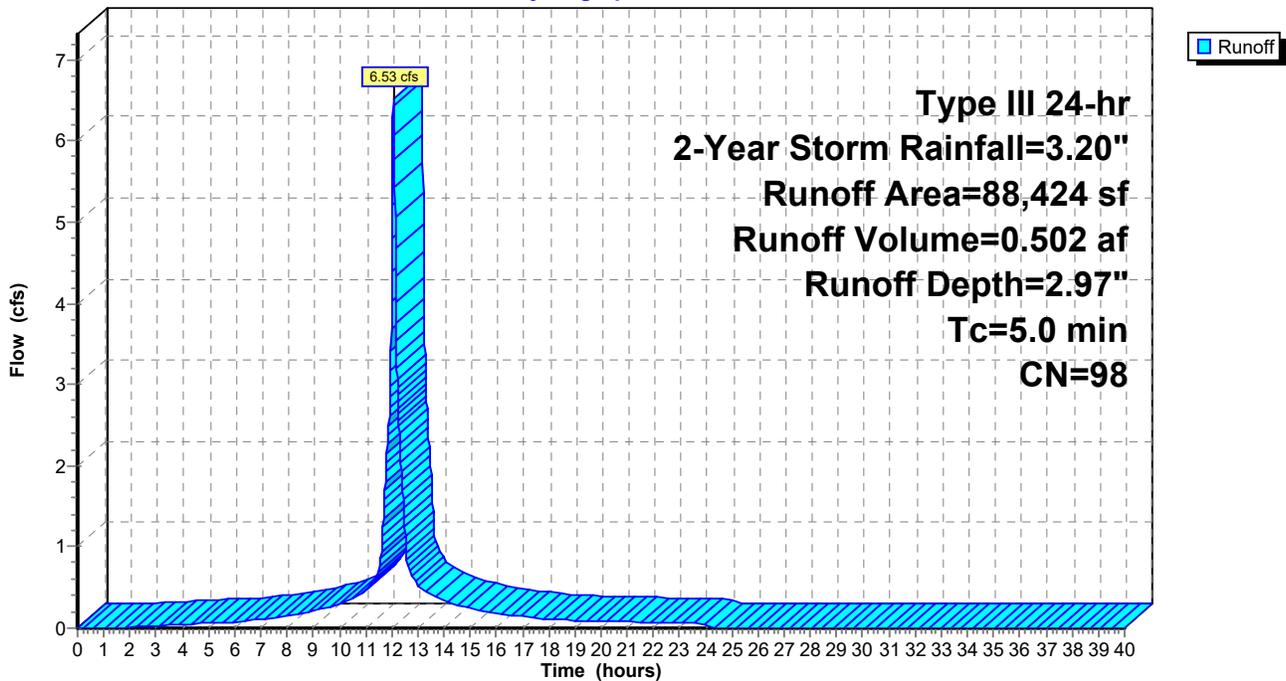
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

Area (sf)	CN	Description
* 88,424	98	Turf Field
88,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201A: Turf Field

Hydrograph



Summary for Subcatchment 201B-1:

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 0.086 af, Depth= 2.97"
 Routed to Pond I-1 : North Ex. Units

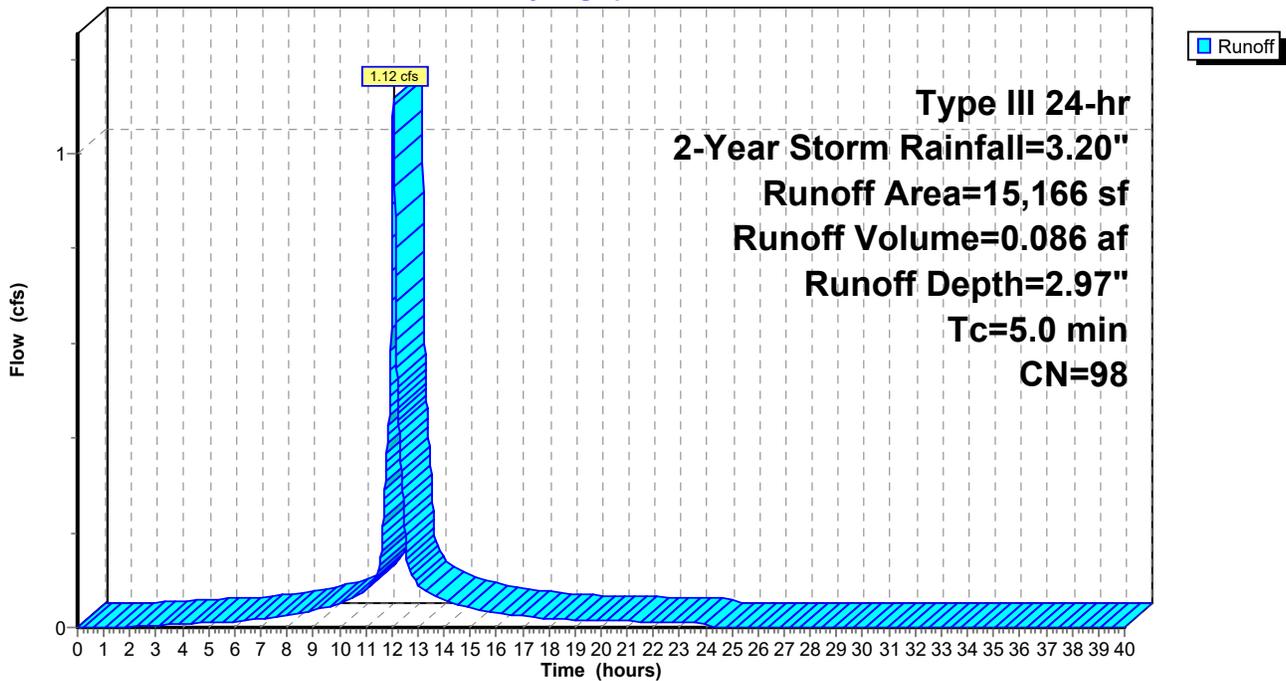
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	14,234	98	Track
*	932	98	Concrete Sidewalk
	15,166	98	Weighted Average
	15,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-1:

Hydrograph



Summary for Subcatchment 201B-2:

Runoff = 2.13 cfs @ 12.07 hrs, Volume= 0.164 af, Depth= 2.97"
 Routed to Pond I-2 : South Ex. Units

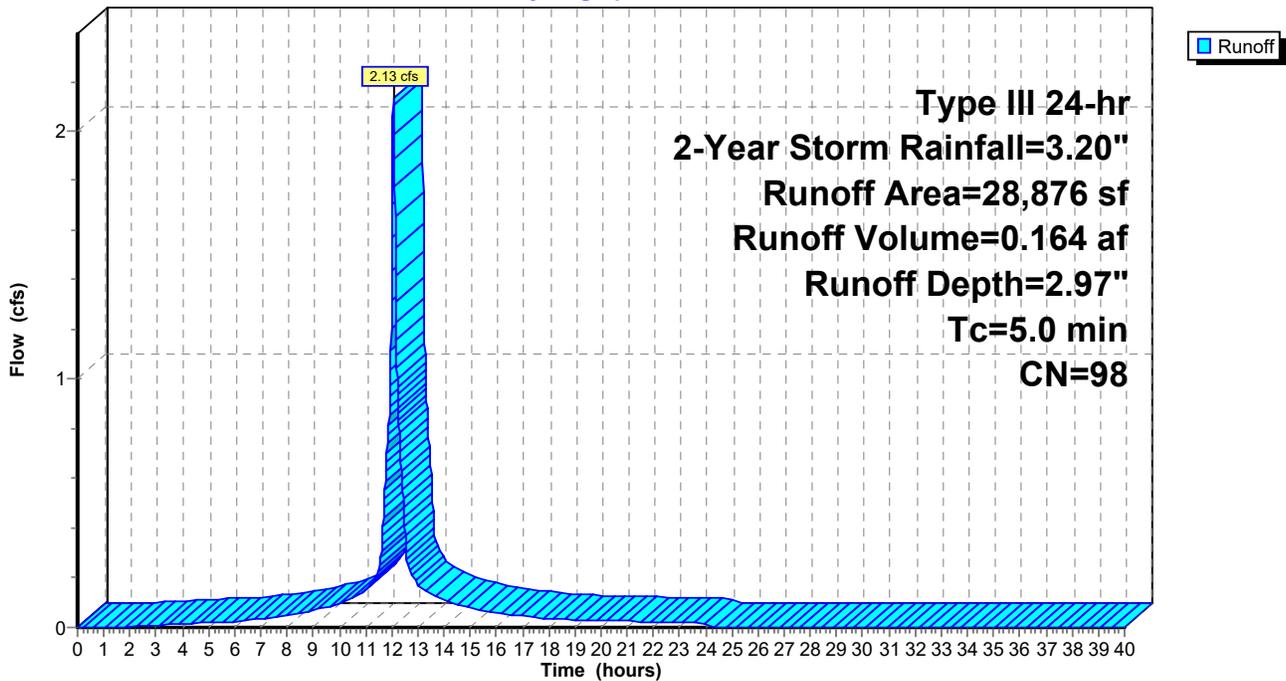
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	26,786	98	Track
*	2,090	98	Concrete Sidewalk
	28,876	98	Weighted Average
	28,876		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-2:

Hydrograph



Summary for Subcatchment 201B-3:

Runoff = 1.81 cfs @ 12.07 hrs, Volume= 0.139 af, Depth= 2.97"
 Routed to Pond SIG-1 : New Storage

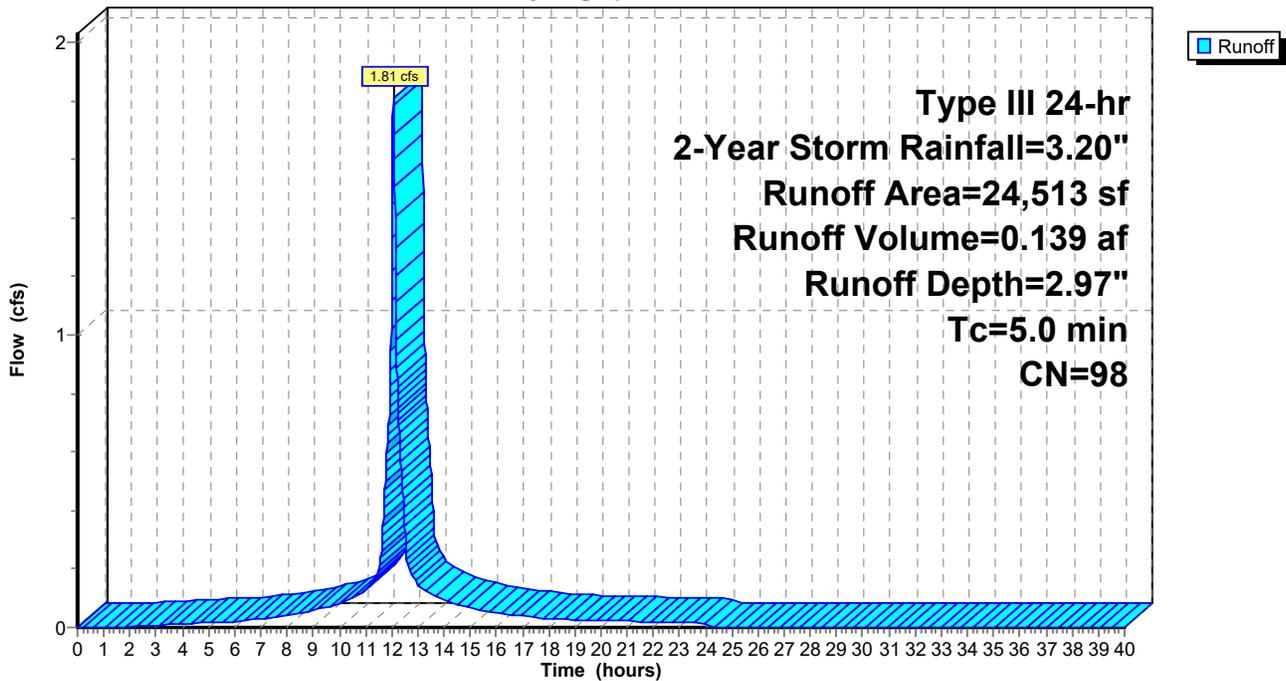
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	22,884	98	Track
*	1,629	98	Concrete Sidewalk
	24,513	98	Weighted Average
	24,513		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-3:

Hydrograph



Summary for Subcatchment 201C:

Runoff = 0.01 cfs @ 12.34 hrs, Volume= 0.003 af, Depth= 0.22"
 Routed to Link DP-1 :

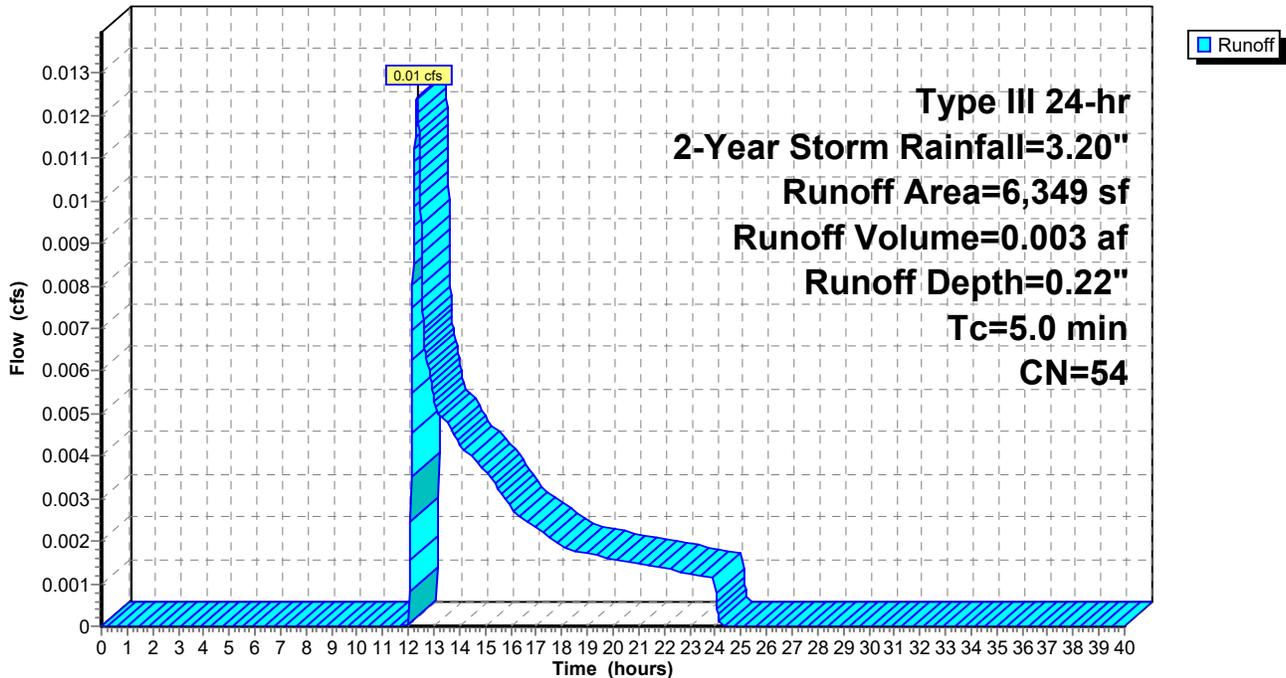
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	864	98	Roof
*	868	98	Concrete Pavement
	477	30	Woods, Good, HSG A
	4,140	39	>75% Grass cover, Good, HSG A
	6,349	54	Weighted Average
	4,617		72.72% Pervious Area
	1,732		27.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201C:

Hydrograph



Summary for Subcatchment 202A:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"
 Routed to Link DP-2 :

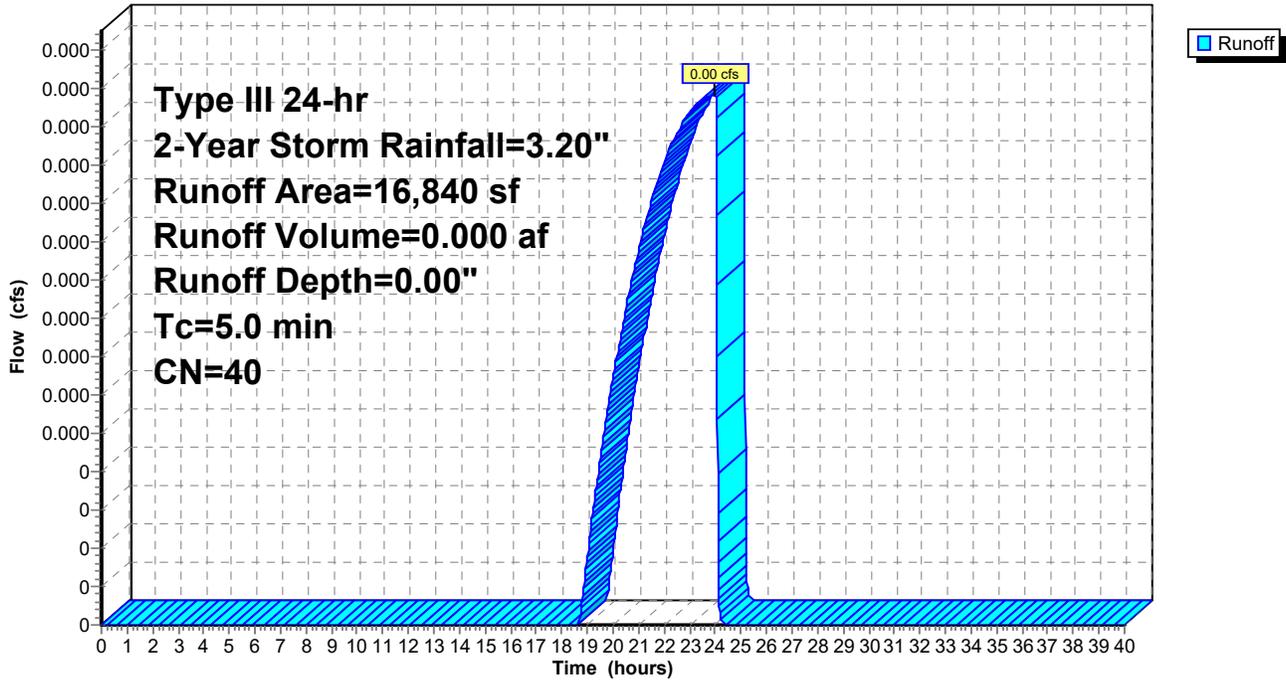
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Storm Rainfall=3.20"

Area (sf)	CN	Description
* 215	98	Filming Tower
16,625	39	>75% Grass cover, Good, HSG A
16,840	40	Weighted Average
16,625		98.72% Pervious Area
215		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 202A:

Hydrograph



Summary for Pond I-1: North Ex. Units

Inflow Area = 0.348 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year Storm event
 Inflow = 1.12 cfs @ 12.07 hrs, Volume= 0.086 af
 Outflow = 0.09 cfs @ 12.95 hrs, Volume= 0.086 af, Atten= 92%, Lag= 52.7 min
 Discarded = 0.09 cfs @ 11.21 hrs, Volume= 0.085 af
 Primary = 0.01 cfs @ 12.95 hrs, Volume= 0.001 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.14' @ 12.95 hrs Surf.Area= 1,838 sf Storage= 1,384 cf
 Flood Elev= 281.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 117.5 min calculated for 0.086 af (100% of inflow)
 Center-of-Mass det. time= 117.4 min (872.9 - 755.5)

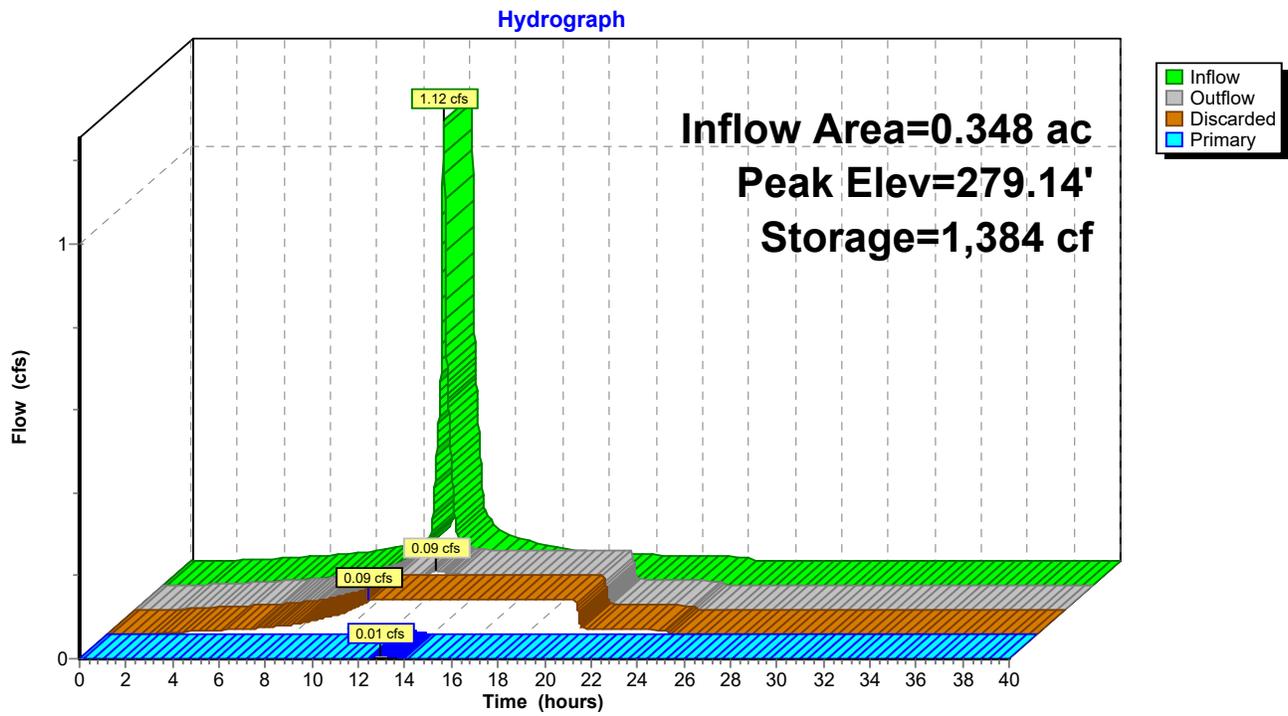
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25"L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50"L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 11.21 hrs HW=278.04' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.01 cfs @ 12.95 hrs HW=279.14' (Free Discharge)
 ↑1=6" PVC (Inlet Controls 0.01 cfs @ 0.66 fps)
 ↑2=6" Manifold (Passes 0.01 cfs of 0.05 cfs potential flow)

Pond I-1: North Ex. Units



Summary for Pond I-2: South Ex. Units

Inflow Area = 0.663 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year Storm event
 Inflow = 2.13 cfs @ 12.07 hrs, Volume= 0.164 af
 Outflow = 0.22 cfs @ 11.51 hrs, Volume= 0.164 af, Atten= 90%, Lag= 0.0 min
 Discarded = 0.22 cfs @ 11.51 hrs, Volume= 0.164 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.76' @ 12.75 hrs Surf.Area= 4,722 sf Storage= 2,345 cf
 Flood Elev= 281.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 71.7 min calculated for 0.164 af (100% of inflow)
 Center-of-Mass det. time= 71.7 min (827.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prisma toid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prisma toid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

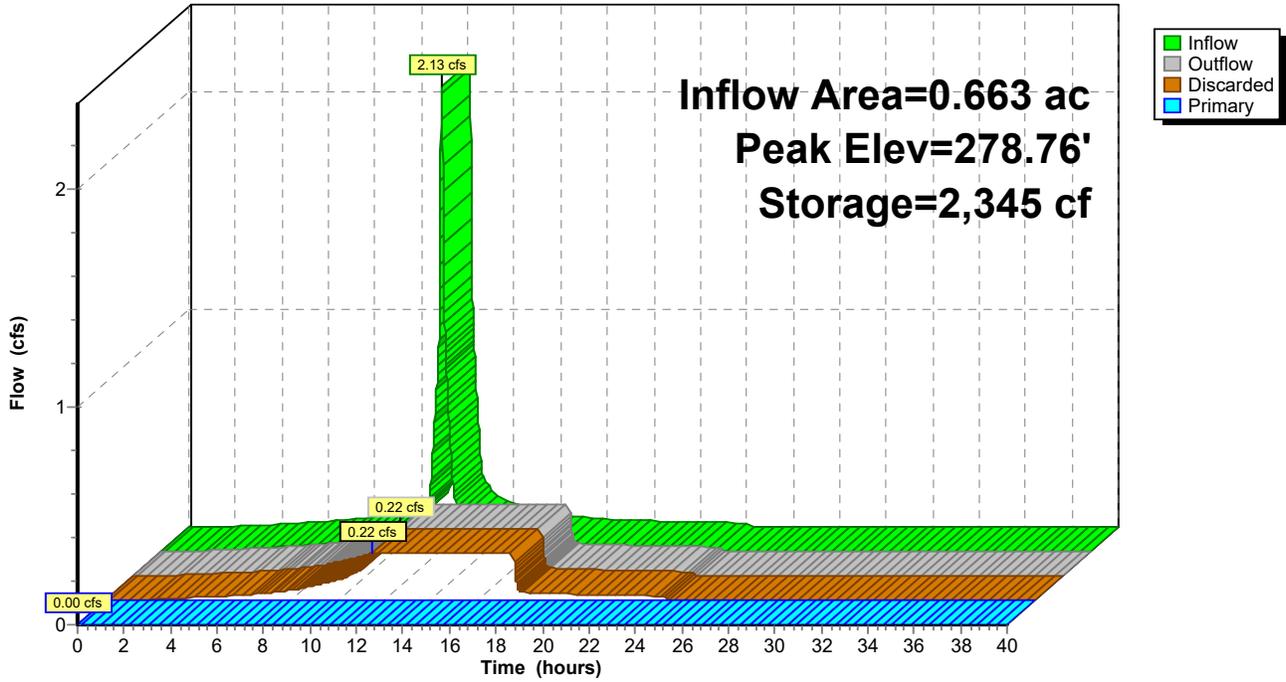
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 11.51 hrs HW=278.04' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=278.00' (Free Discharge)
 ↑1=6" PVC (Controls 0.00 cfs)
 ↑2=6" Manifold (Controls 0.00 cfs)

Pond I-2: South Ex. Units

Hydrograph



Summary for Pond SIG-1: New Storage

Inflow Area = 0.563 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year Storm event
 Inflow = 1.81 cfs @ 12.07 hrs, Volume= 0.139 af
 Outflow = 0.20 cfs @ 11.59 hrs, Volume= 0.139 af, Atten= 89%, Lag= 0.0 min
 Discarded = 0.20 cfs @ 11.59 hrs, Volume= 0.139 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.01' @ 12.65 hrs Surf.Area= 4,399 sf Storage= 1,914 cf
 Flood Elev= 281.50' Surf.Area= 4,399 sf Storage= 4,948 cf

Plug-Flow detention time= 60.8 min calculated for 0.139 af (100% of inflow)
 Center-of-Mass det. time= 60.7 min (816.2 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	278.67'	2,683 cf	ADS_StormTech SC-310 +Cap x 182 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 182 Chambers in 7 Rows
#2	278.17'	2,265 cf	23.50"W x 187.20'L x 2.17'H Prisma toid for 7 rows of 26 9,546 cf Overall - 2,683 cf Embedded = 6,863 cf x 33.0% Voids
		4,948 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.50'	6.0" Round 6" PVC L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.50' / 278.85' S= 0.0283 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.50'	6.0" Vert. 6" Manifold X 7.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.17'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.20 cfs @ 11.59 hrs HW=278.20' (Free Discharge)

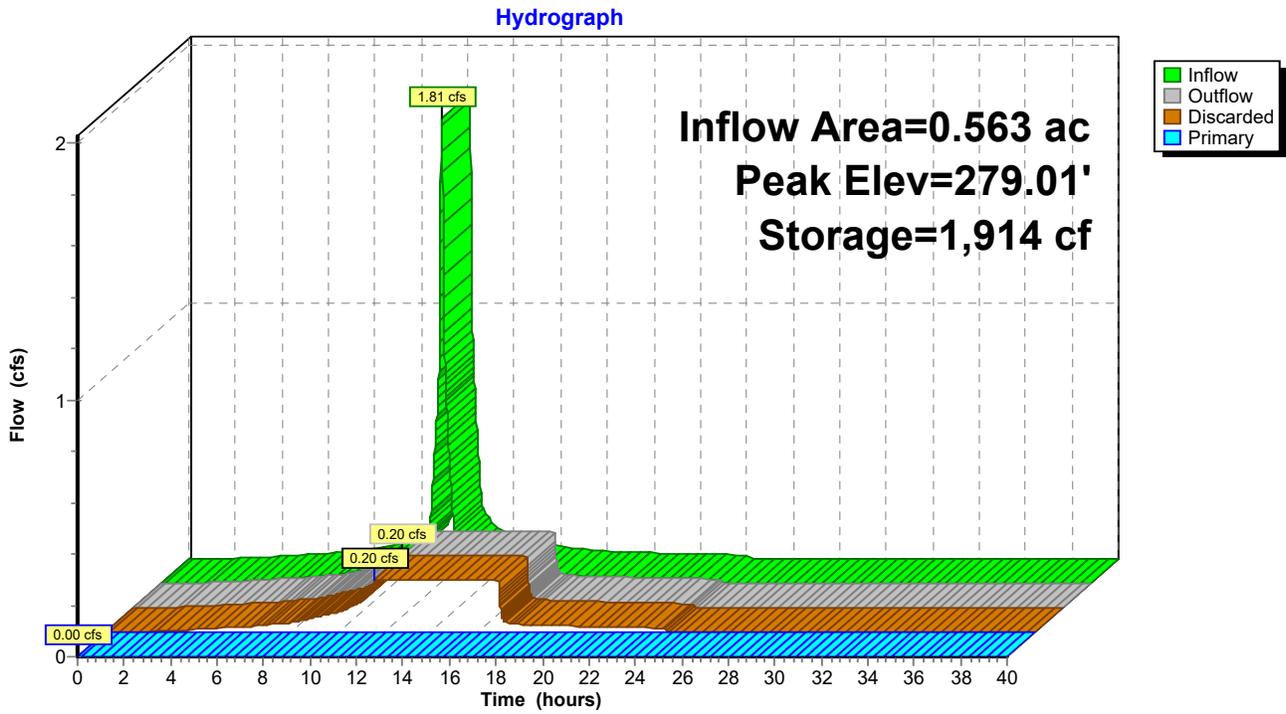
↑**3=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=278.17' (Free Discharge)

↑**1=6" PVC** (Controls 0.00 cfs)

↑**2=6" Manifold** (Controls 0.00 cfs)

Pond SIG-1: New Storage



Summary for Pond TF:

Inflow Area = 2.030 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year Storm event
 Inflow = 6.53 cfs @ 12.07 hrs, Volume= 0.502 af
 Outflow = 4.09 cfs @ 12.01 hrs, Volume= 0.502 af, Atten= 37%, Lag= 0.0 min
 Discarded = 4.09 cfs @ 12.01 hrs, Volume= 0.502 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 280.54' @ 12.16 hrs Surf.Area= 88,424 sf Storage= 1,133 cf
 Flood Elev= 281.50' Surf.Area= 88,424 sf Storage= 29,180 cf

Plug-Flow detention time= 1.6 min calculated for 0.502 af (100% of inflow)
 Center-of-Mass det. time= 1.6 min (757.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description	
#1	280.50'	29,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	88,424	0.0	0	0
281.00	88,424	33.0	14,590	14,590
281.50	88,424	33.0	14,590	29,180

Device	Routing	Invert	Outlet Devices
#1	Primary	278.00'	12.0" Round Culvert L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 278.00' / 275.00' S= 0.0448 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	281.00'	3.0" Vert. Orifice (panel drains) X 16.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	280.50'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=4.09 cfs @ 12.01 hrs HW=280.51' (Free Discharge)

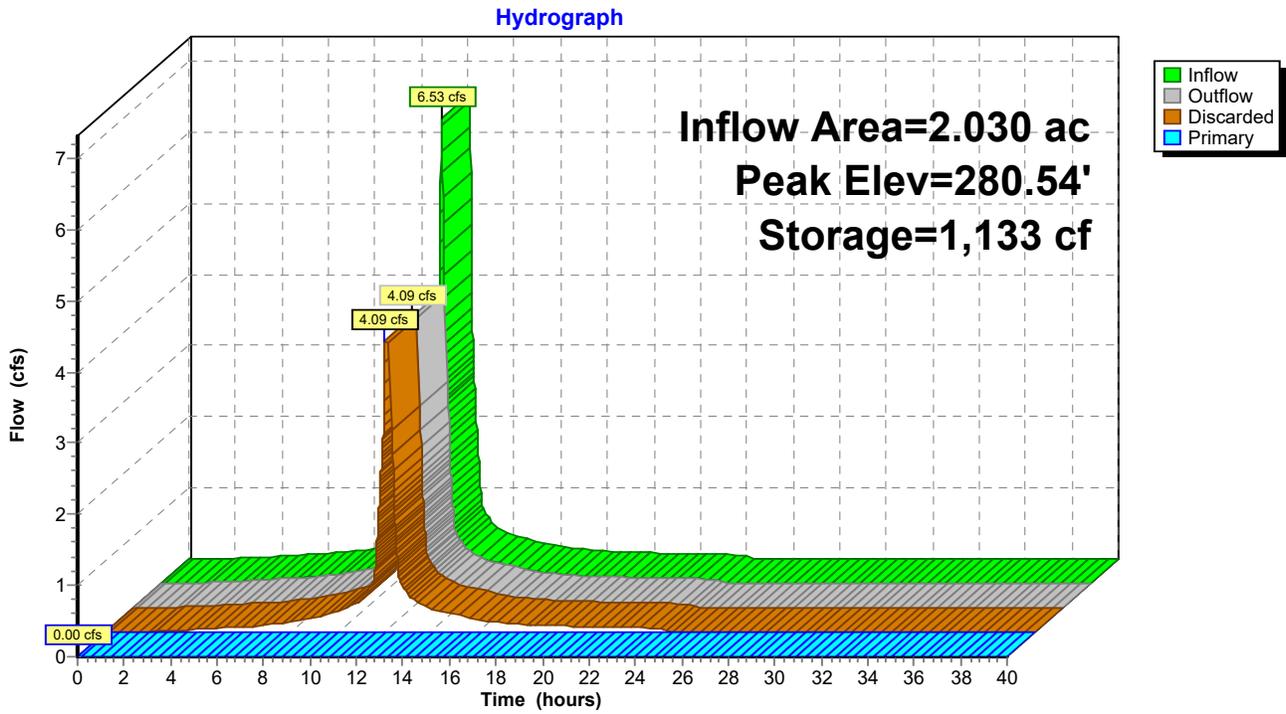
↑ **3=Exfiltration** (Exfiltration Controls 4.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)

↑ **1=Culvert** (Passes 0.00 cfs of 5.35 cfs potential flow)

↑ **2=Orifice (panel drains)** (Controls 0.00 cfs)

Pond TF:



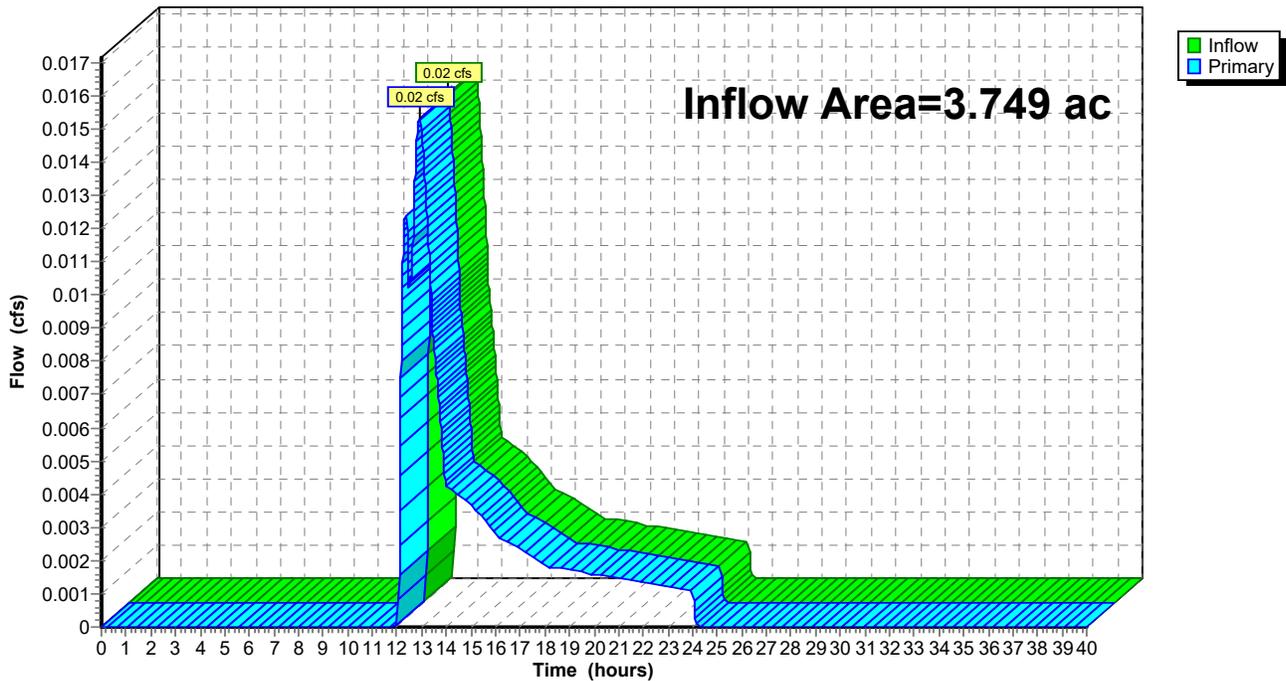
Summary for Link DP-1:

Inflow Area = 3.749 ac, 97.17% Impervious, Inflow Depth = 0.01" for 2-Year Storm event
Inflow = 0.02 cfs @ 12.91 hrs, Volume= 0.003 af
Primary = 0.02 cfs @ 12.91 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



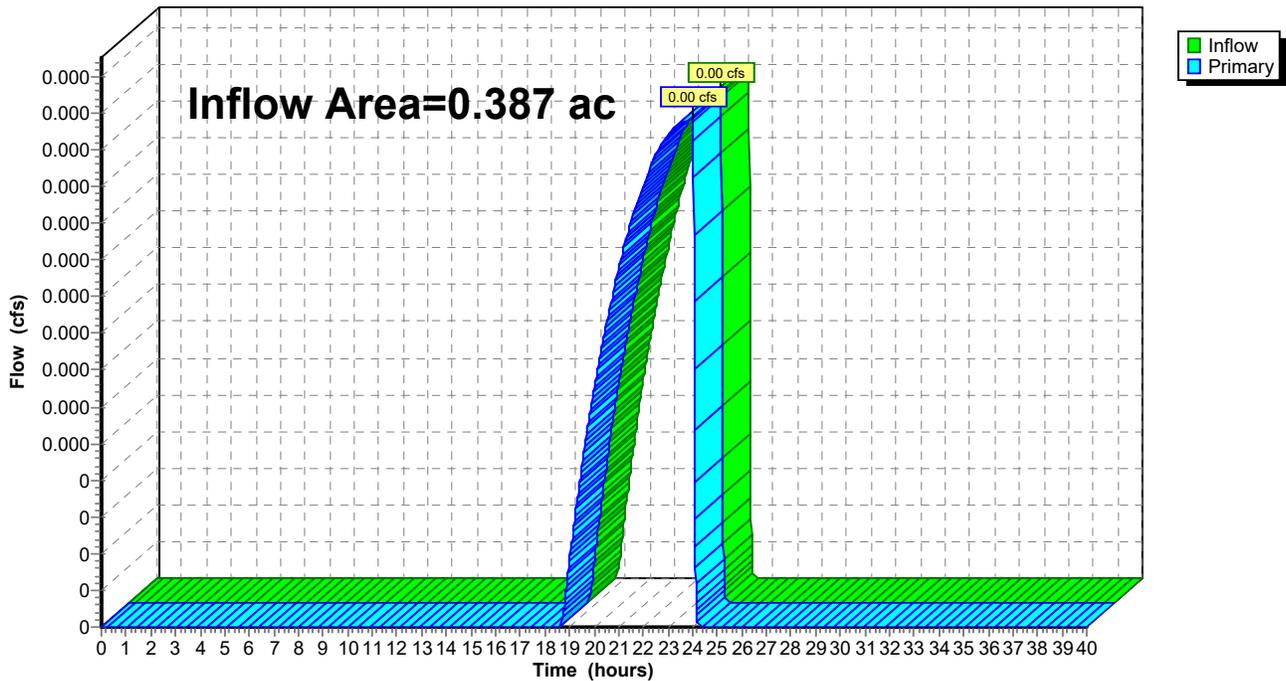
Summary for Link DP-2:

Inflow Area = 0.387 ac, 1.28% Impervious, Inflow Depth = 0.00" for 2-Year Storm event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



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Type III 24-hr 10-Year Storm Rainfall=4.70"

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Page 23

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment201A: Turf Field Runoff Area=88,424 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=9.66 cfs 0.755 af

Subcatchment201B-1: Runoff Area=15,166 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=1.66 cfs 0.130 af

Subcatchment201B-2: Runoff Area=28,876 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=3.16 cfs 0.247 af

Subcatchment201B-3: Runoff Area=24,513 sf 100.00% Impervious Runoff Depth=4.46"
 Tc=5.0 min CN=98 Runoff=2.68 cfs 0.209 af

Subcatchment201C: Runoff Area=6,349 sf 27.28% Impervious Runoff Depth=0.78"
 Tc=5.0 min CN=54 Runoff=0.10 cfs 0.009 af

Subcatchment202A: Runoff Area=16,840 sf 1.28% Impervious Runoff Depth=0.17"
 Tc=5.0 min CN=40 Runoff=0.01 cfs 0.006 af

Pond I-1: North Ex. Units Peak Elev=279.64' Storage=1,793 cf Inflow=1.66 cfs 0.130 af
 Discarded=0.09 cfs 0.105 af Primary=0.41 cfs 0.025 af Outflow=0.50 cfs 0.130 af

Pond I-2: South Ex. Units Peak Elev=279.26' Storage=3,951 cf Inflow=3.16 cfs 0.247 af
 Discarded=0.22 cfs 0.239 af Primary=0.08 cfs 0.008 af Outflow=0.30 cfs 0.247 af

Pond SIG-1: New Storage Peak Elev=279.47' Storage=3,342 cf Inflow=2.68 cfs 0.209 af
 Discarded=0.20 cfs 0.209 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.209 af

Pond TF: Peak Elev=280.61' Storage=3,128 cf Inflow=9.66 cfs 0.755 af
 Discarded=4.09 cfs 0.755 af Primary=0.00 cfs 0.000 af Outflow=4.09 cfs 0.755 af

Link DP-1: Inflow=0.48 cfs 0.042 af
 Primary=0.48 cfs 0.042 af

Link DP-2: Inflow=0.01 cfs 0.006 af
 Primary=0.01 cfs 0.006 af

Total Runoff Area = 4.136 ac Runoff Volume = 1.356 af Average Runoff Depth = 3.93"
11.79% Pervious = 0.488 ac 88.21% Impervious = 3.648 ac

Summary for Subcatchment 201A: Turf Field

Runoff = 9.66 cfs @ 12.07 hrs, Volume= 0.755 af, Depth= 4.46"
 Routed to Pond TF :

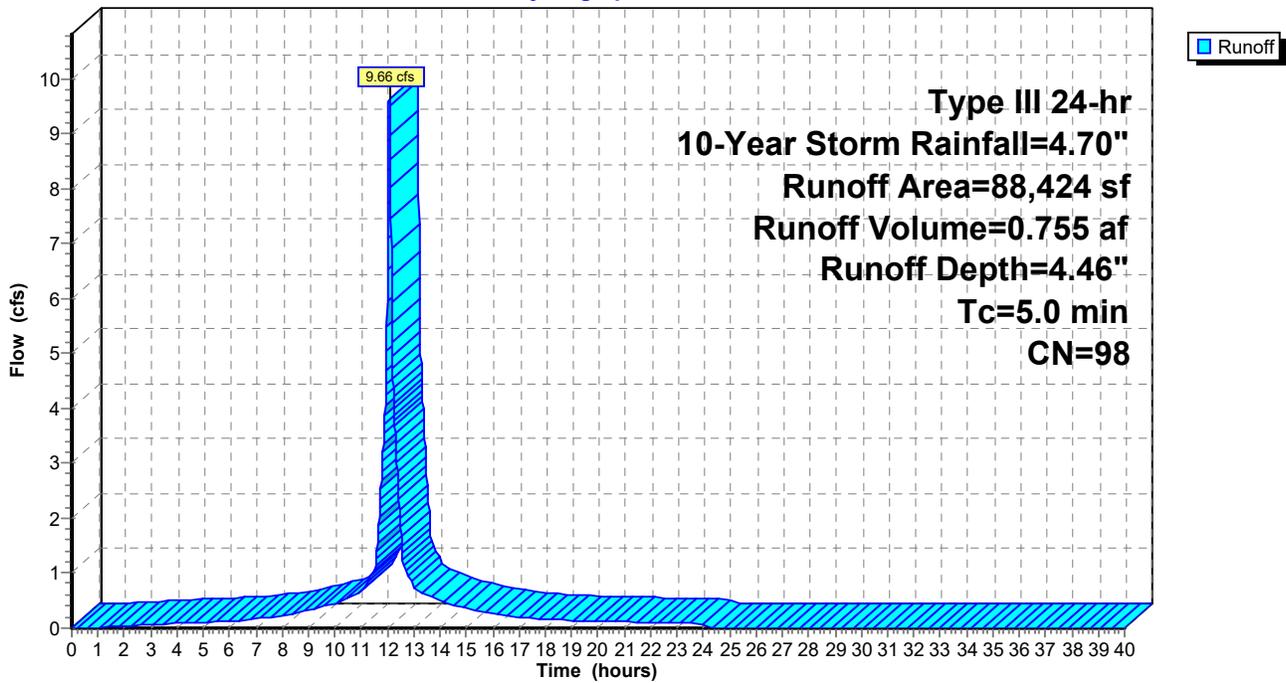
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
* 88,424	98	Turf Field
88,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201A: Turf Field

Hydrograph



Summary for Subcatchment 201B-1:

Runoff = 1.66 cfs @ 12.07 hrs, Volume= 0.130 af, Depth= 4.46"
 Routed to Pond I-1 : North Ex. Units

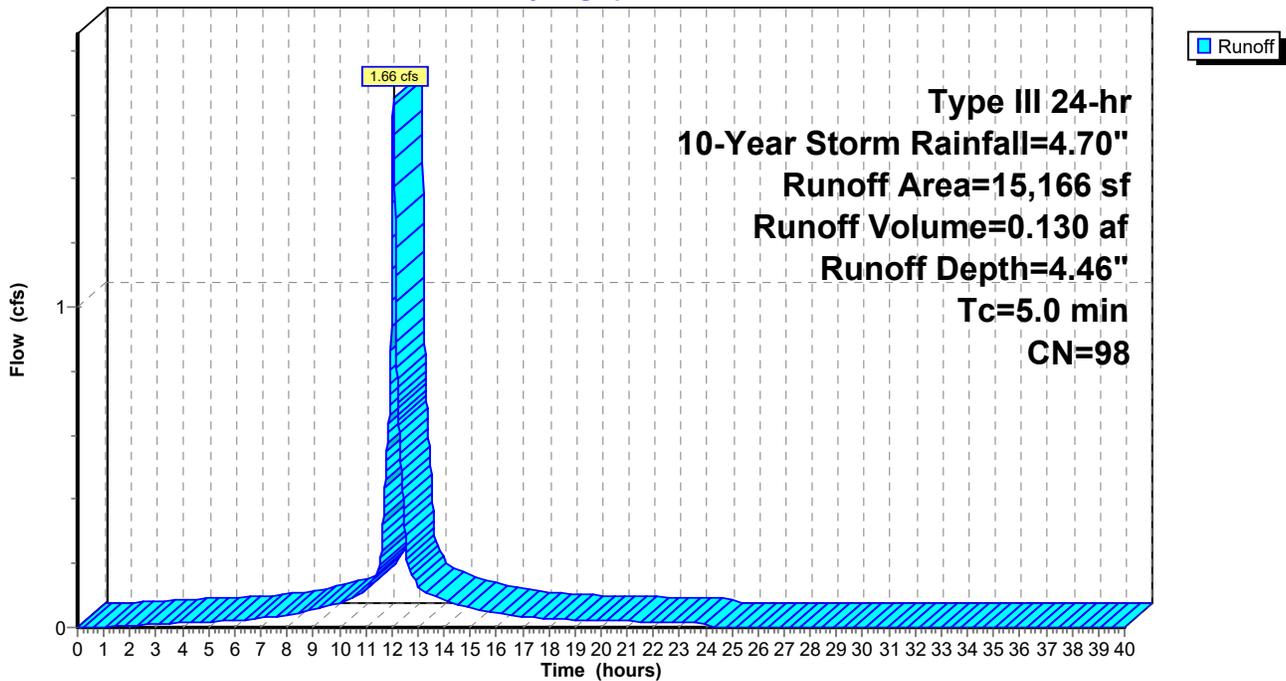
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

	Area (sf)	CN	Description
*	14,234	98	Track
*	932	98	Concrete Sidewalk
	15,166	98	Weighted Average
	15,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-1:

Hydrograph



Summary for Subcatchment 201B-2:

Runoff = 3.16 cfs @ 12.07 hrs, Volume= 0.247 af, Depth= 4.46"
 Routed to Pond I-2 : South Ex. Units

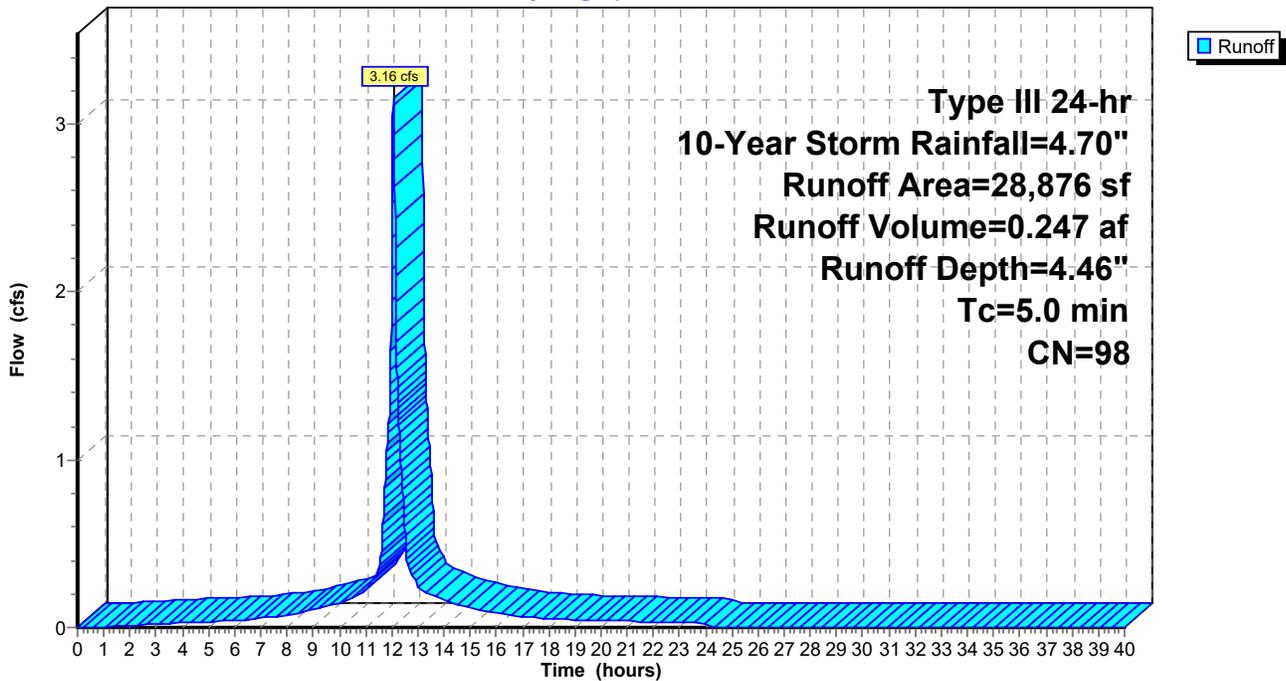
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

	Area (sf)	CN	Description
*	26,786	98	Track
*	2,090	98	Concrete Sidewalk
	28,876	98	Weighted Average
	28,876		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-2:

Hydrograph



Summary for Subcatchment 201B-3:

Runoff = 2.68 cfs @ 12.07 hrs, Volume= 0.209 af, Depth= 4.46"
 Routed to Pond SIG-1 : New Storage

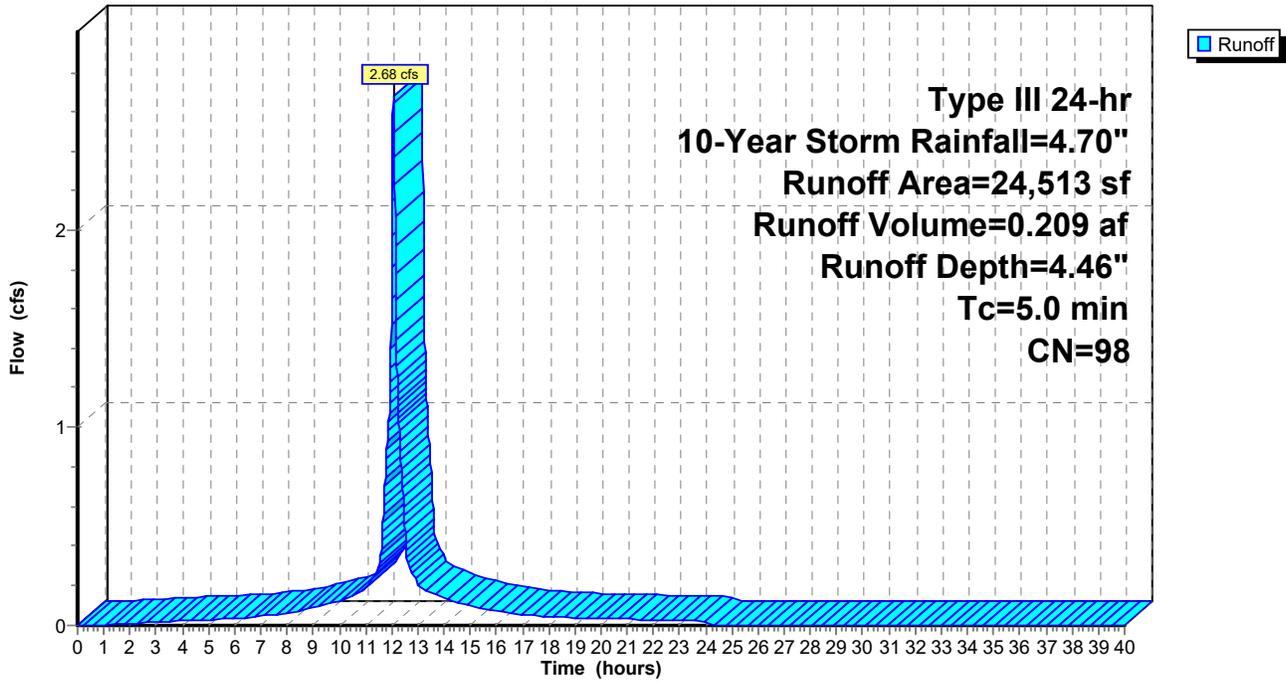
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

	Area (sf)	CN	Description
*	22,884	98	Track
*	1,629	98	Concrete Sidewalk
	24,513	98	Weighted Average
	24,513		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-3:

Hydrograph



Summary for Subcatchment 201C:

Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 0.78"
 Routed to Link DP-1 :

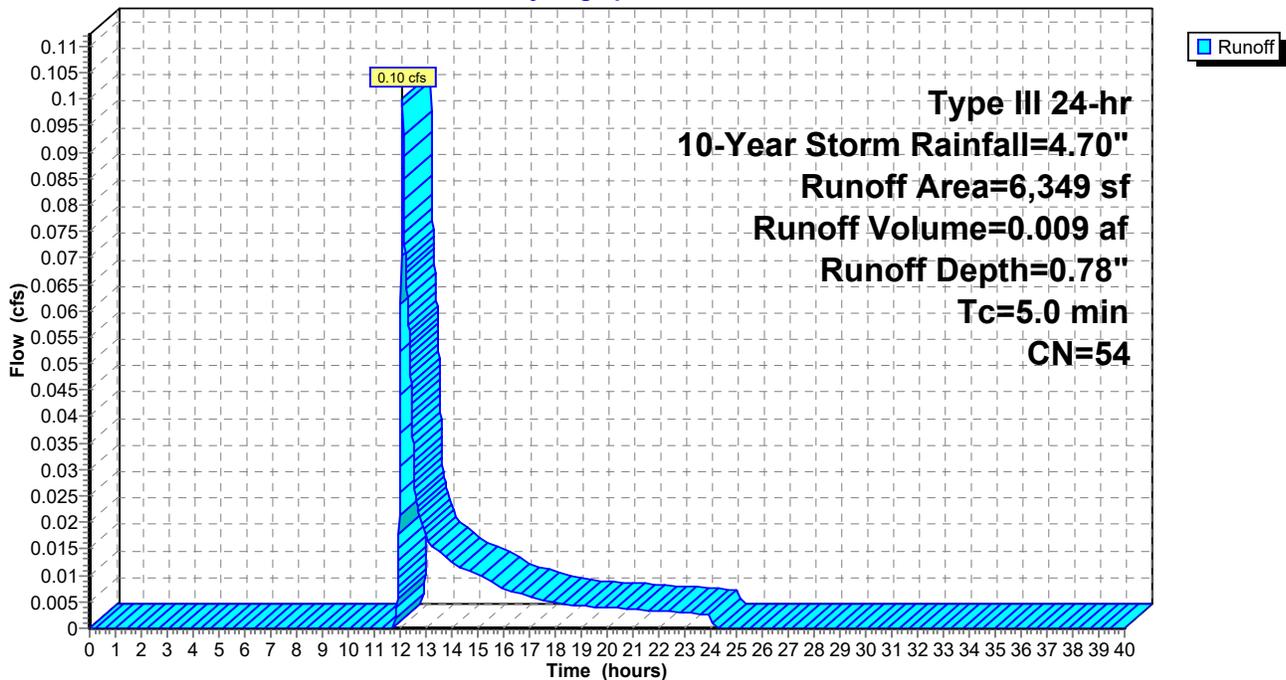
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

	Area (sf)	CN	Description
*	864	98	Roof
*	868	98	Concrete Pavement
	477	30	Woods, Good, HSG A
	4,140	39	>75% Grass cover, Good, HSG A
	6,349	54	Weighted Average
	4,617		72.72% Pervious Area
	1,732		27.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201C:

Hydrograph



Summary for Subcatchment 202A:

Runoff = 0.01 cfs @ 12.48 hrs, Volume= 0.006 af, Depth= 0.17"
 Routed to Link DP-2 :

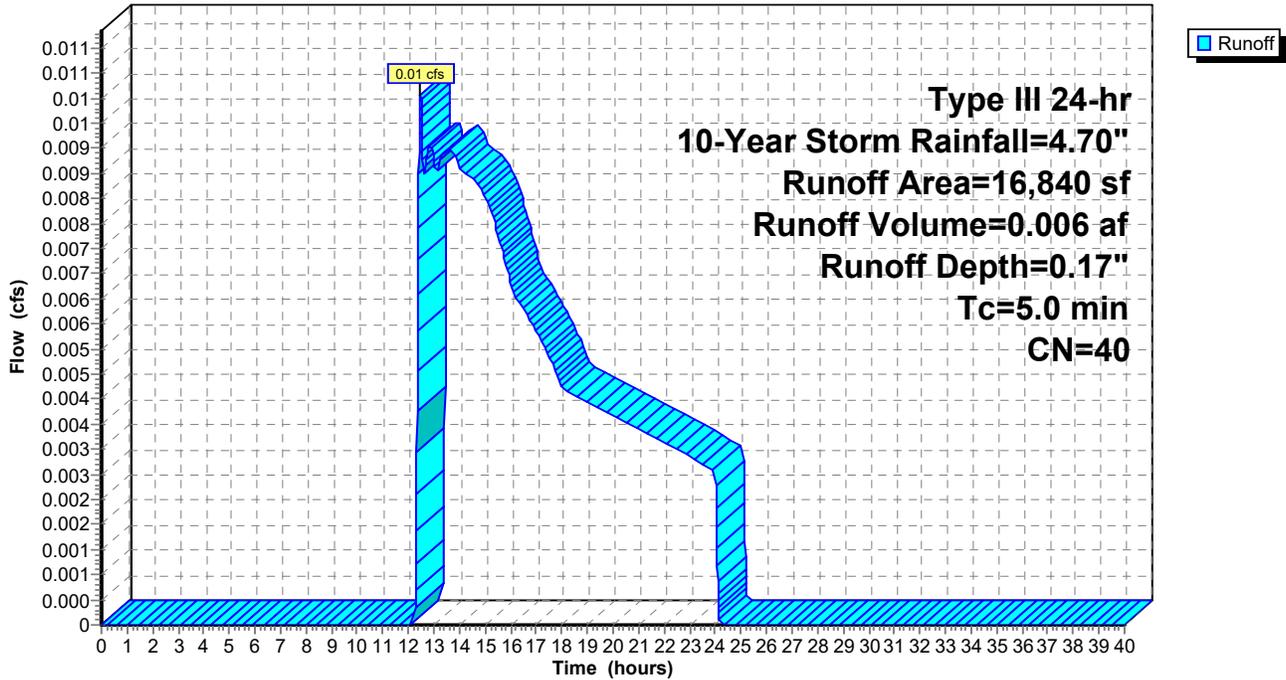
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
* 215	98	Filming Tower
16,625	39	>75% Grass cover, Good, HSG A
16,840	40	Weighted Average
16,625		98.72% Pervious Area
215		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 202A:

Hydrograph



Summary for Pond I-1: North Ex. Units

Inflow Area = 0.348 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-Year Storm event
 Inflow = 1.66 cfs @ 12.07 hrs, Volume= 0.130 af
 Outflow = 0.50 cfs @ 12.37 hrs, Volume= 0.130 af, Atten= 70%, Lag= 17.9 min
 Discarded = 0.09 cfs @ 10.33 hrs, Volume= 0.105 af
 Primary = 0.41 cfs @ 12.37 hrs, Volume= 0.025 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.64' @ 12.37 hrs Surf.Area= 1,838 sf Storage= 1,793 cf
 Flood Elev= 281.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 105.9 min calculated for 0.129 af (100% of inflow)
 Center-of-Mass det. time= 105.8 min (854.0 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25"L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50"L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

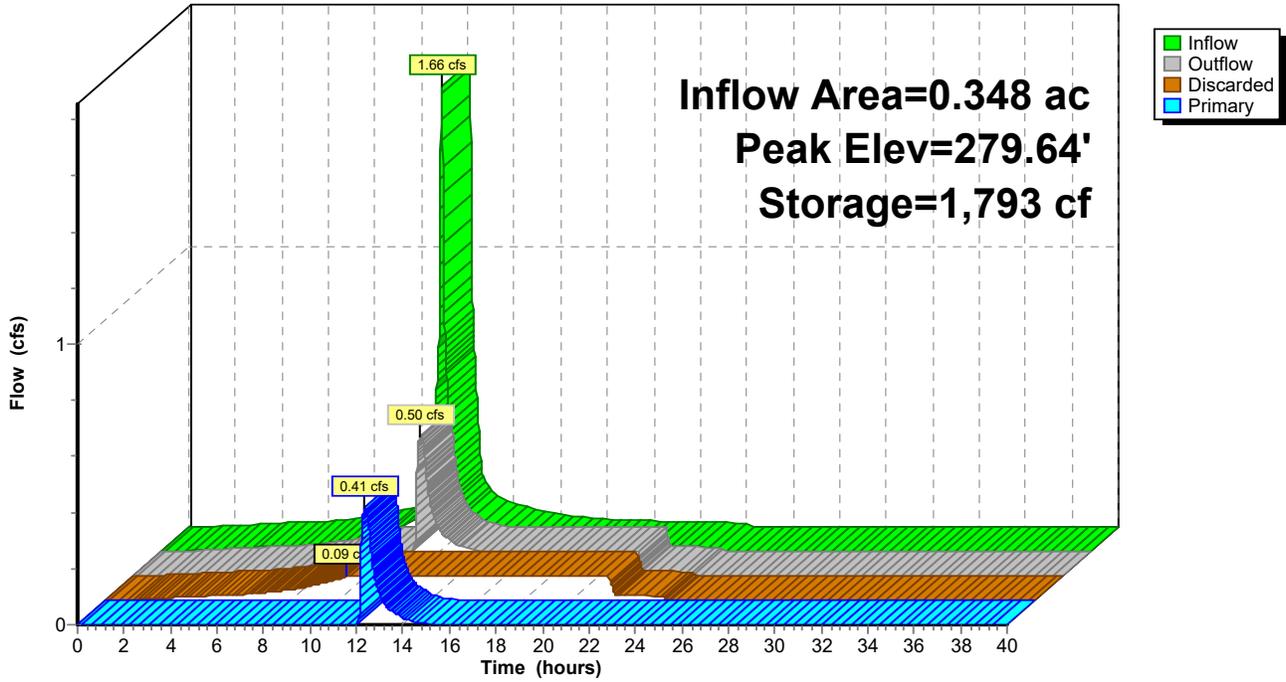
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 10.33 hrs HW=278.04' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.41 cfs @ 12.37 hrs HW=279.64' (Free Discharge)
 ↑1=6" PVC (Inlet Controls 0.41 cfs @ 2.11 fps)
 ↑2=6" Manifold (Passes 0.41 cfs of 2.10 cfs potential flow)

Pond I-1: North Ex. Units

Hydrograph



Summary for Pond I-2: South Ex. Units

Inflow Area = 0.663 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-Year Storm event
 Inflow = 3.16 cfs @ 12.07 hrs, Volume= 0.247 af
 Outflow = 0.30 cfs @ 12.85 hrs, Volume= 0.247 af, Atten= 91%, Lag= 46.6 min
 Discarded = 0.22 cfs @ 11.08 hrs, Volume= 0.239 af
 Primary = 0.08 cfs @ 12.85 hrs, Volume= 0.008 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.26' @ 12.85 hrs Surf.Area= 4,722 sf Storage= 3,951 cf
 Flood Elev= 281.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 124.3 min calculated for 0.247 af (100% of inflow)
 Center-of-Mass det. time= 124.2 min (872.4 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prisma toid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prisma toid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

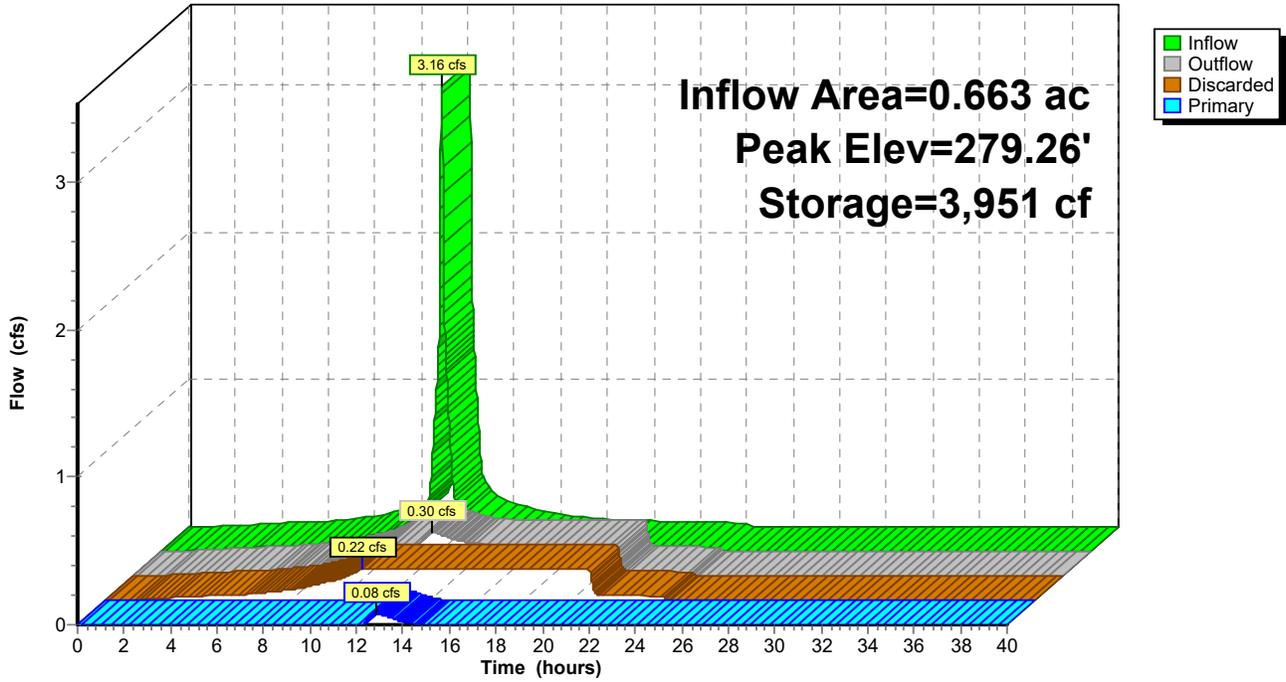
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 11.08 hrs HW=278.04' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.08 cfs @ 12.85 hrs HW=279.26' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 0.08 cfs @ 1.16 fps)
 ↑ **2=6" Manifold** (Passes 0.08 cfs of 0.77 cfs potential flow)

Pond I-2: South Ex. Units

Hydrograph



Summary for Pond SIG-1: New Storage

Inflow Area = 0.563 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-Year Storm event
 Inflow = 2.68 cfs @ 12.07 hrs, Volume= 0.209 af
 Outflow = 0.20 cfs @ 11.19 hrs, Volume= 0.209 af, Atten= 92%, Lag= 0.0 min
 Discarded = 0.20 cfs @ 11.19 hrs, Volume= 0.209 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.47' @ 13.04 hrs Surf.Area= 4,399 sf Storage= 3,342 cf
 Flood Elev= 281.50' Surf.Area= 4,399 sf Storage= 4,948 cf

Plug-Flow detention time= 118.4 min calculated for 0.209 af (100% of inflow)
 Center-of-Mass det. time= 118.4 min (866.6 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	278.67'	2,683 cf	ADS_StormTech SC-310 +Cap x 182 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 182 Chambers in 7 Rows
#2	278.17'	2,265 cf	23.50"W x 187.20'L x 2.17'H Prismatoid for 7 rows of 26 9,546 cf Overall - 2,683 cf Embedded = 6,863 cf x 33.0% Voids
		4,948 cf	Total Available Storage

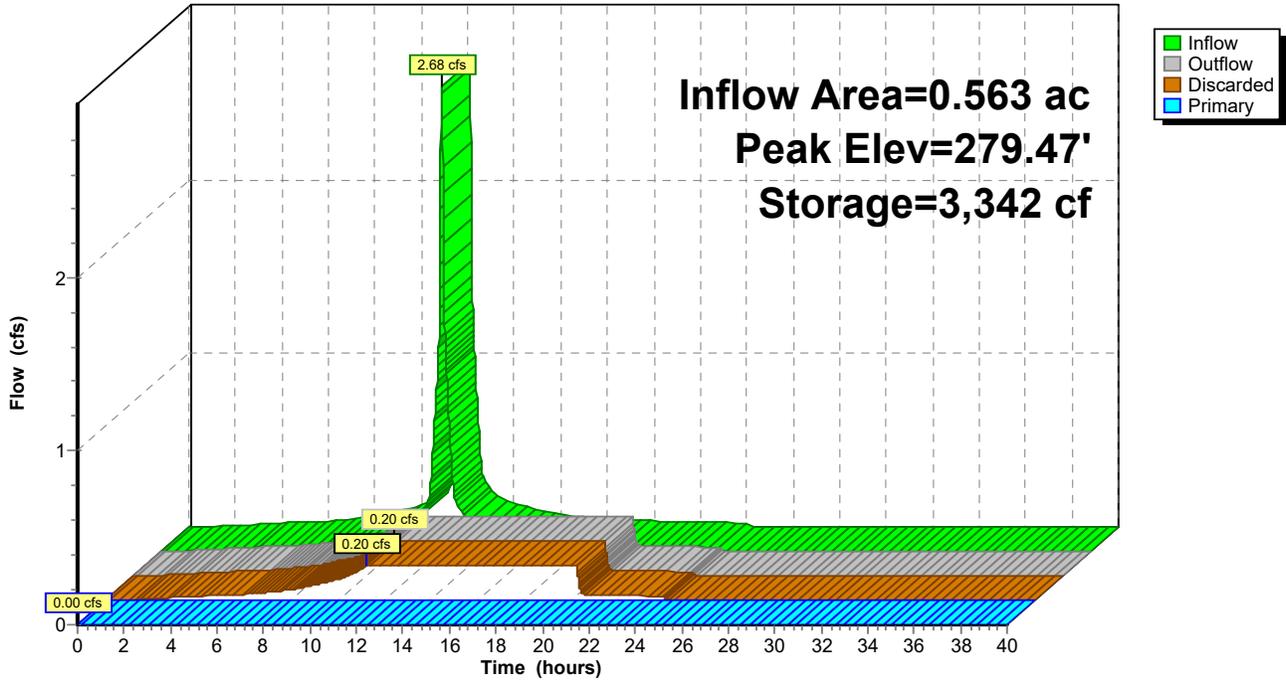
Device	Routing	Invert	Outlet Devices
#1	Primary	279.50'	6.0" Round 6" PVC L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.50' / 278.85' S= 0.0283 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.50'	6.0" Vert. 6" Manifold X 7.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.17'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.20 cfs @ 11.19 hrs HW=278.20' (Free Discharge)
 ↑**3=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=278.17' (Free Discharge)
 ↑**1=6" PVC** (Controls 0.00 cfs)
 ↑**2=6" Manifold** (Controls 0.00 cfs)

Pond SIG-1: New Storage

Hydrograph



Summary for Pond TF:

Inflow Area = 2.030 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10-Year Storm event
 Inflow = 9.66 cfs @ 12.07 hrs, Volume= 0.755 af
 Outflow = 4.09 cfs @ 11.95 hrs, Volume= 0.755 af, Atten= 58%, Lag= 0.0 min
 Discarded = 4.09 cfs @ 11.95 hrs, Volume= 0.755 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 280.61' @ 12.24 hrs Surf.Area= 88,424 sf Storage= 3,128 cf
 Flood Elev= 281.50' Surf.Area= 88,424 sf Storage= 29,180 cf

Plug-Flow detention time= 3.5 min calculated for 0.755 af (100% of inflow)
 Center-of-Mass det. time= 3.5 min (751.6 - 748.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	280.50'	29,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	88,424	0.0	0	0
281.00	88,424	33.0	14,590	14,590
281.50	88,424	33.0	14,590	29,180

Device	Routing	Invert	Outlet Devices
#1	Primary	278.00'	12.0" Round Culvert L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 278.00' / 275.00' S= 0.0448 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	281.00'	3.0" Vert. Orifice (panel drains) X 16.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	280.50'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=4.09 cfs @ 11.95 hrs HW=280.51' (Free Discharge)

↑ **3=Exfiltration** (Exfiltration Controls 4.09 cfs)

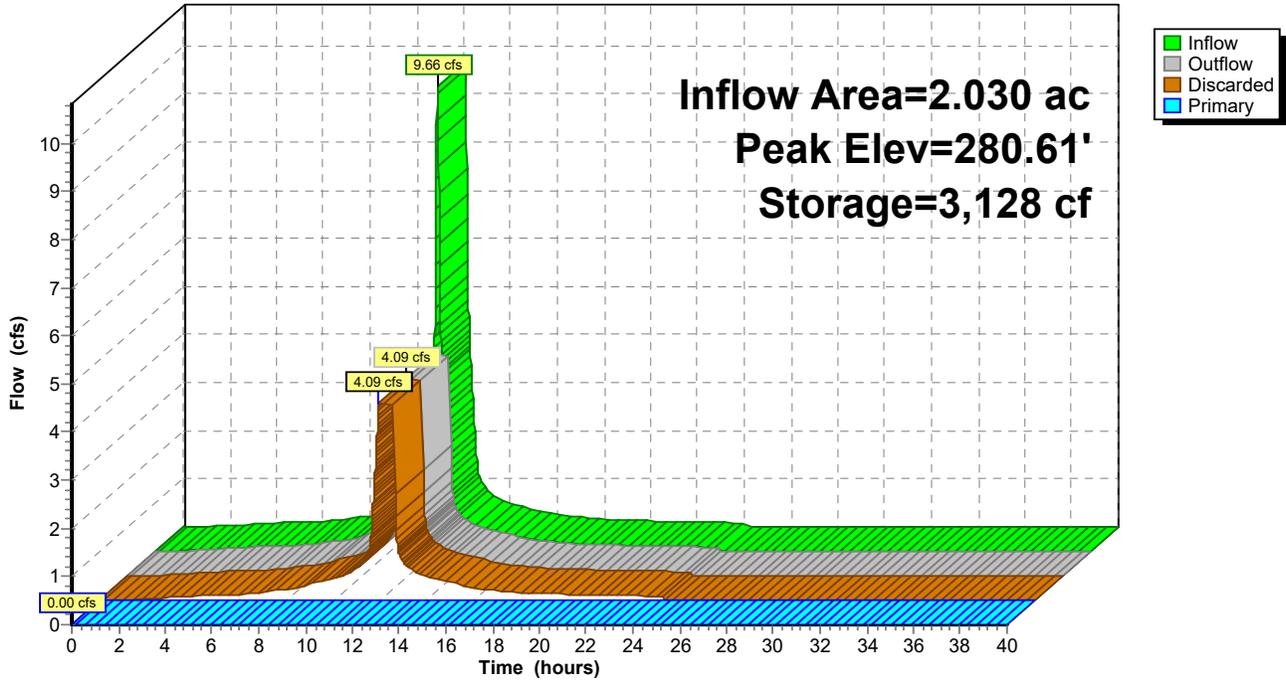
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)

↑ **1=Culvert** (Passes 0.00 cfs of 5.35 cfs potential flow)

↑ **2=Orifice (panel drains)** (Controls 0.00 cfs)

Pond TF:

Hydrograph



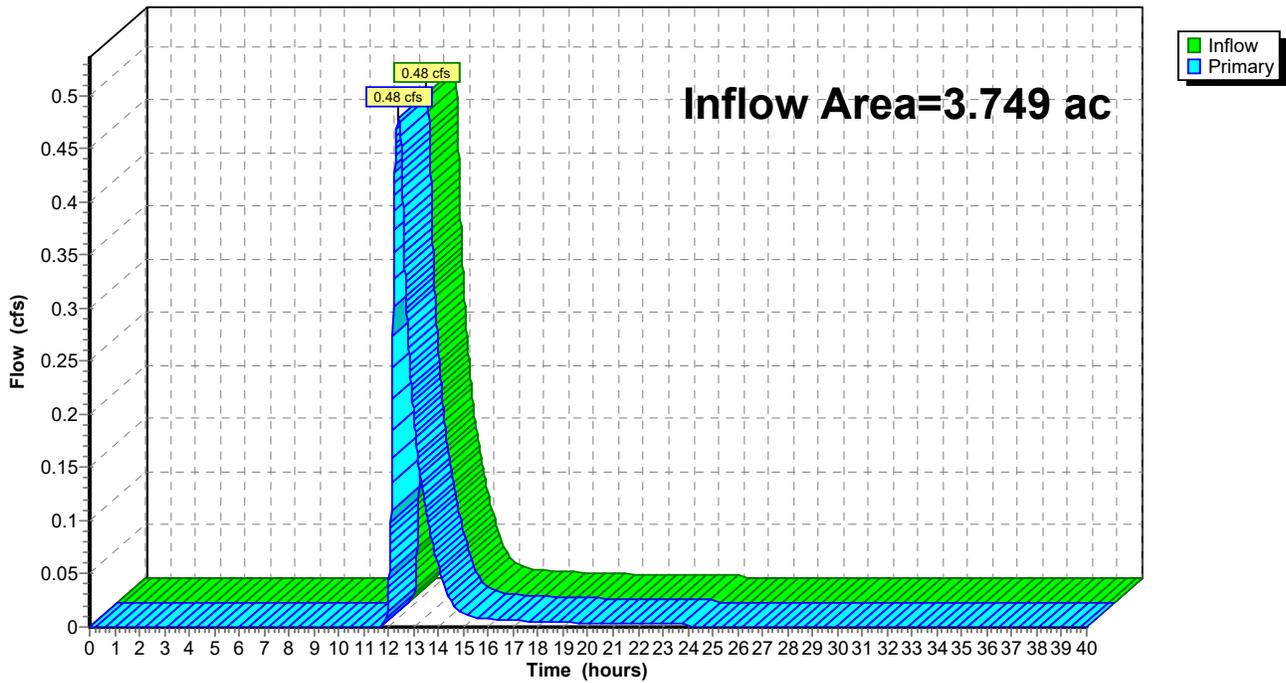
Summary for Link DP-1:

Inflow Area = 3.749 ac, 97.17% Impervious, Inflow Depth = 0.13" for 10-Year Storm event
Inflow = 0.48 cfs @ 12.41 hrs, Volume= 0.042 af
Primary = 0.48 cfs @ 12.41 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



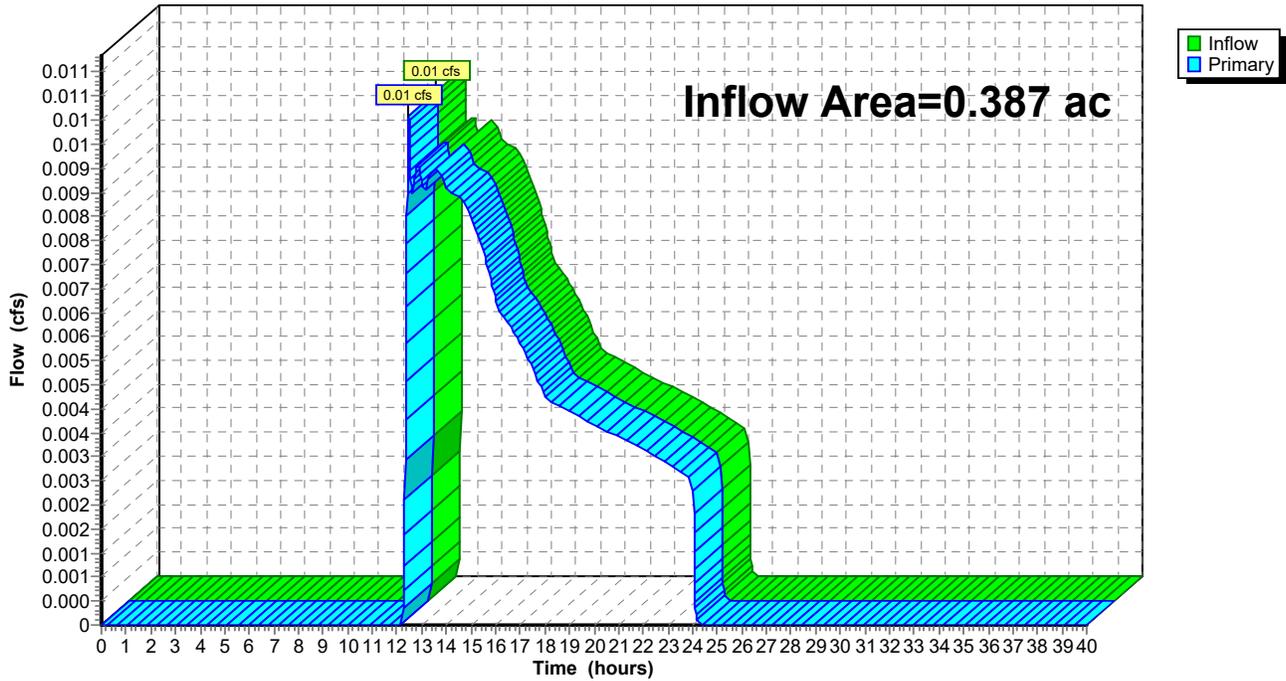
Summary for Link DP-2:

Inflow Area = 0.387 ac, 1.28% Impervious, Inflow Depth = 0.17" for 10-Year Storm event
Inflow = 0.01 cfs @ 12.48 hrs, Volume= 0.006 af
Primary = 0.01 cfs @ 12.48 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



21263_POST

Prepared by SMRT

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Type III 24-hr 25-Year Storm Rainfall=5.50"

Printed 2/28/2022

Page 40

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment201A: Turf Field Runoff Area=88,424 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=11.33 cfs 0.890 af

Subcatchment201B-1: Runoff Area=15,166 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=1.94 cfs 0.153 af

Subcatchment201B-2: Runoff Area=28,876 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=3.70 cfs 0.291 af

Subcatchment201B-3: Runoff Area=24,513 sf 100.00% Impervious Runoff Depth=5.26"
 Tc=5.0 min CN=98 Runoff=3.14 cfs 0.247 af

Subcatchment201C: Runoff Area=6,349 sf 27.28% Impervious Runoff Depth=1.17"
 Tc=5.0 min CN=54 Runoff=0.17 cfs 0.014 af

Subcatchment202A: Runoff Area=16,840 sf 1.28% Impervious Runoff Depth=0.36"
 Tc=5.0 min CN=40 Runoff=0.05 cfs 0.012 af

Pond I-1: North Ex. Units Peak Elev=279.99' Storage=2,007 cf Inflow=1.94 cfs 0.153 af
 Discarded=0.09 cfs 0.113 af Primary=0.61 cfs 0.039 af Outflow=0.69 cfs 0.153 af

Pond I-2: South Ex. Units Peak Elev=279.55' Storage=4,531 cf Inflow=3.70 cfs 0.291 af
 Discarded=0.22 cfs 0.260 af Primary=0.35 cfs 0.031 af Outflow=0.57 cfs 0.291 af

Pond SIG-1: New Storage Peak Elev=279.72' Storage=3,973 cf Inflow=3.14 cfs 0.247 af
 Discarded=0.20 cfs 0.236 af Primary=0.11 cfs 0.011 af Outflow=0.31 cfs 0.247 af

Pond TF: Peak Elev=280.66' Storage=4,569 cf Inflow=11.33 cfs 0.890 af
 Discarded=4.09 cfs 0.890 af Primary=0.00 cfs 0.000 af Outflow=4.09 cfs 0.890 af

Link DP-1: Inflow=1.02 cfs 0.095 af
 Primary=1.02 cfs 0.095 af

Link DP-2: Inflow=0.05 cfs 0.012 af
 Primary=0.05 cfs 0.012 af

Total Runoff Area = 4.136 ac Runoff Volume = 1.606 af Average Runoff Depth = 4.66"
11.79% Pervious = 0.488 ac 88.21% Impervious = 3.648 ac

Summary for Subcatchment 201A: Turf Field

Runoff = 11.33 cfs @ 12.07 hrs, Volume= 0.890 af, Depth= 5.26"
 Routed to Pond TF :

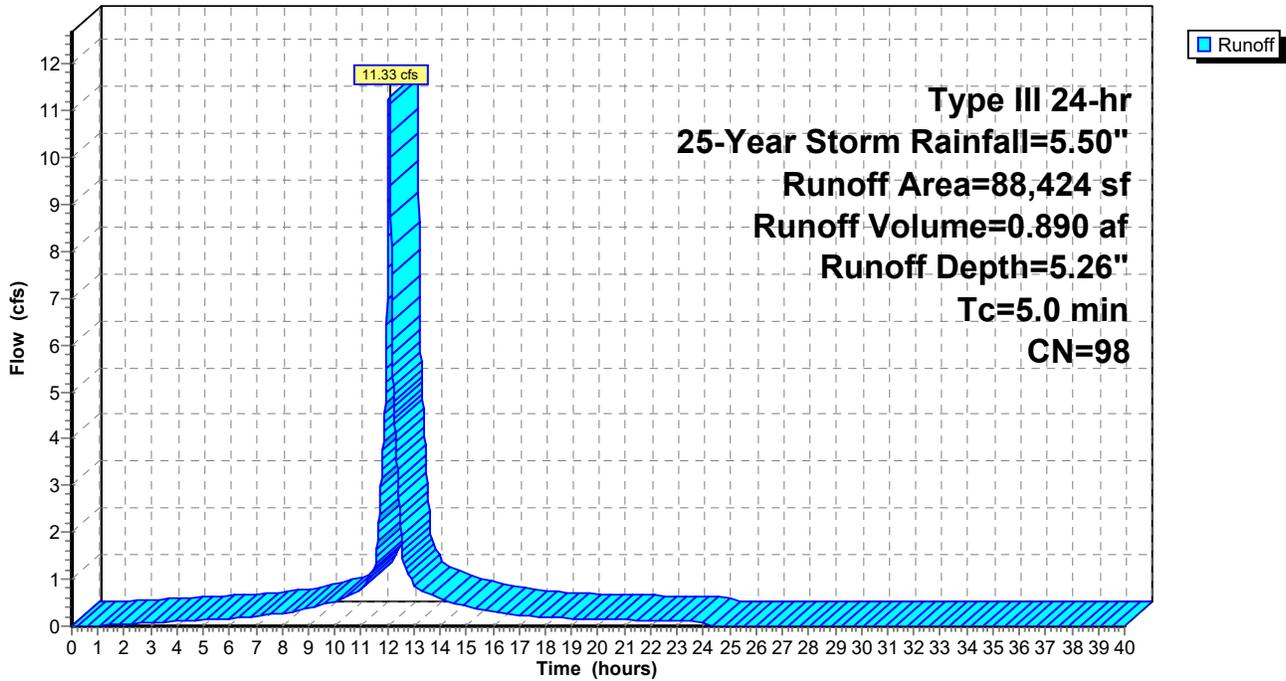
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
* 88,424	98	Turf Field
88,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201A: Turf Field

Hydrograph



Summary for Subcatchment 201B-1:

Runoff = 1.94 cfs @ 12.07 hrs, Volume= 0.153 af, Depth= 5.26"
 Routed to Pond I-1 : North Ex. Units

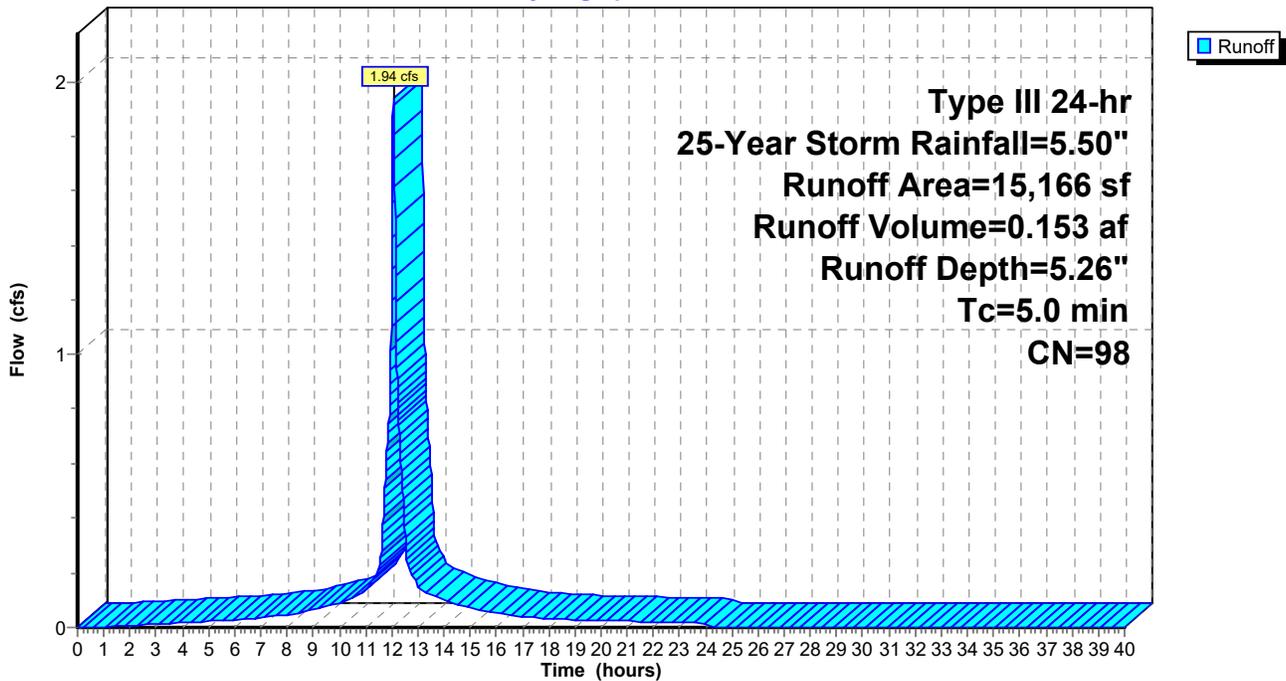
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

	Area (sf)	CN	Description
*	14,234	98	Track
*	932	98	Concrete Sidewalk
	15,166	98	Weighted Average
	15,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-1:

Hydrograph



Summary for Subcatchment 201B-2:

Runoff = 3.70 cfs @ 12.07 hrs, Volume= 0.291 af, Depth= 5.26"
 Routed to Pond I-2 : South Ex. Units

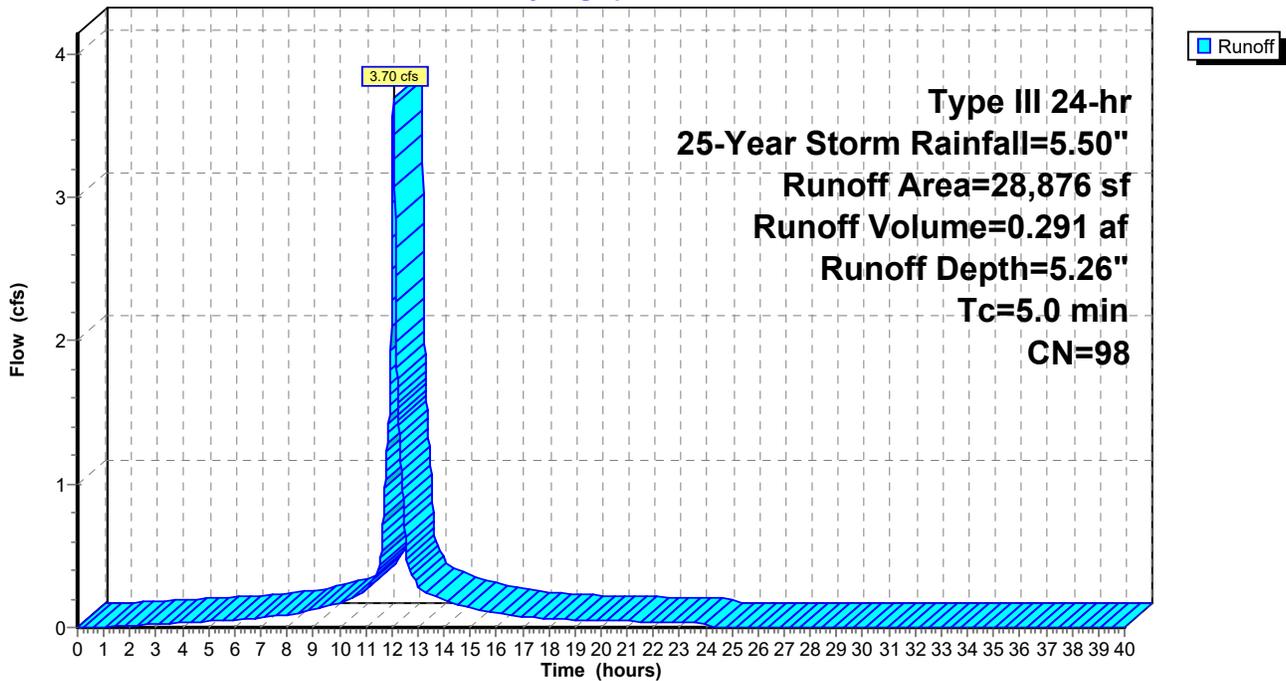
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

	Area (sf)	CN	Description
*	26,786	98	Track
*	2,090	98	Concrete Sidewalk
	28,876	98	Weighted Average
	28,876		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-2:

Hydrograph



Summary for Subcatchment 201B-3:

Runoff = 3.14 cfs @ 12.07 hrs, Volume= 0.247 af, Depth= 5.26"
 Routed to Pond SIG-1 : New Storage

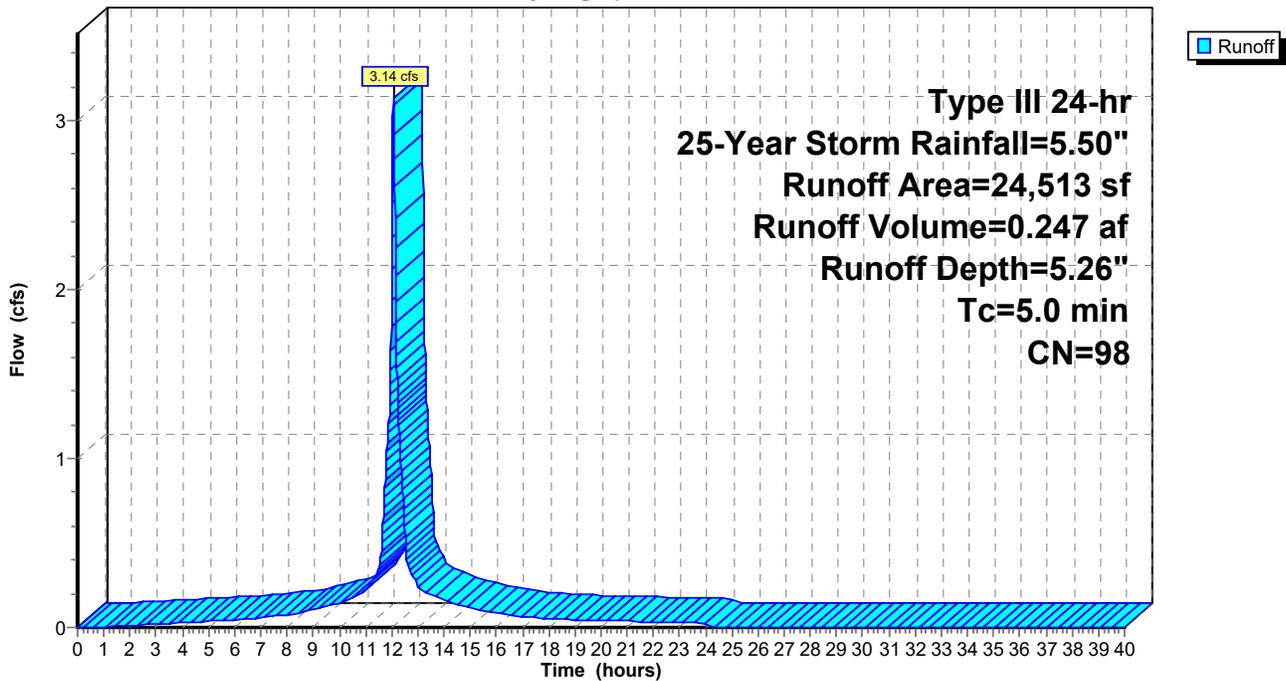
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

	Area (sf)	CN	Description
*	22,884	98	Track
*	1,629	98	Concrete Sidewalk
	24,513	98	Weighted Average
	24,513		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-3:

Hydrograph



Summary for Subcatchment 201C:

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 1.17"
 Routed to Link DP-1 :

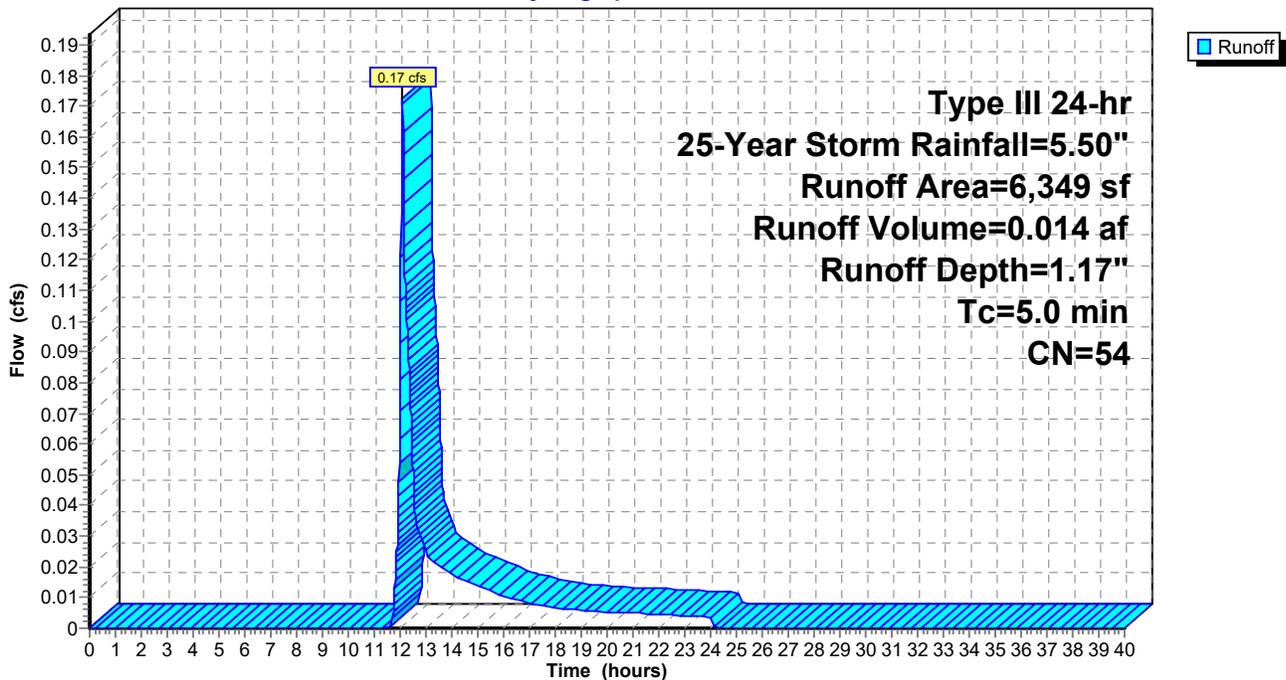
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

	Area (sf)	CN	Description
*	864	98	Roof
*	868	98	Concrete Pavement
	477	30	Woods, Good, HSG A
	4,140	39	>75% Grass cover, Good, HSG A
	6,349	54	Weighted Average
	4,617		72.72% Pervious Area
	1,732		27.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201C:

Hydrograph



Summary for Subcatchment 202A:

Runoff = 0.05 cfs @ 12.35 hrs, Volume= 0.012 af, Depth= 0.36"
 Routed to Link DP-2 :

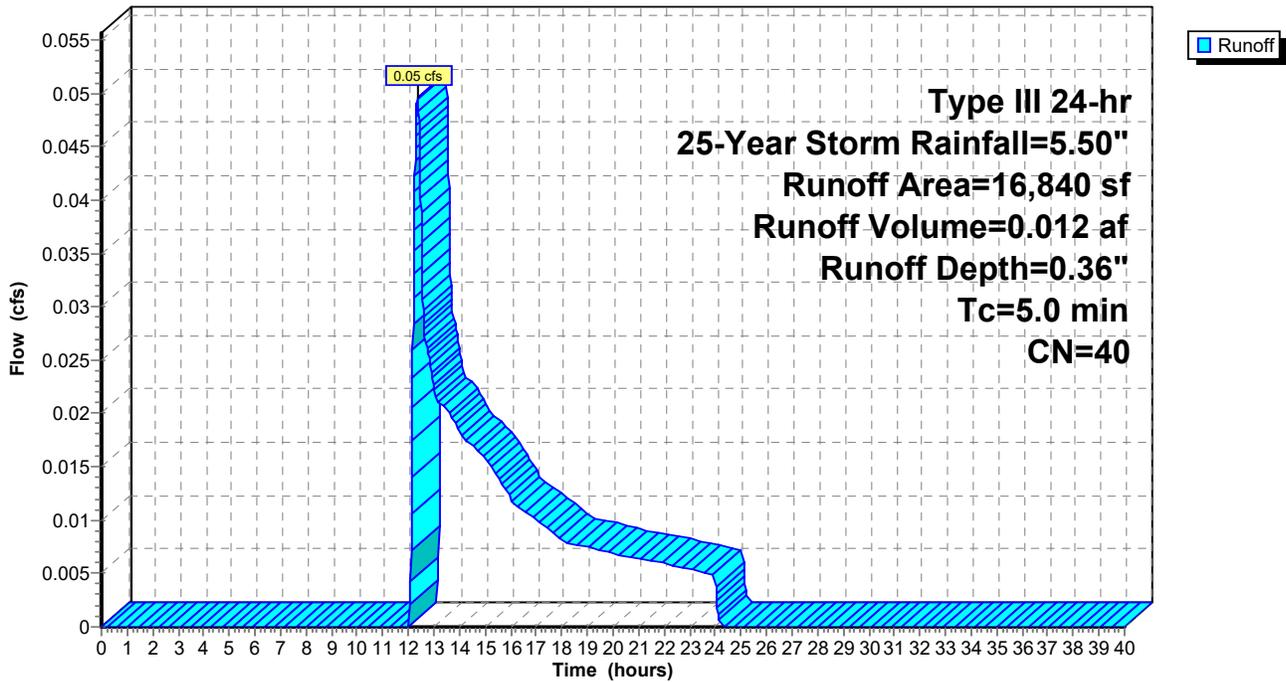
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
* 215	98	Filming Tower
16,625	39	>75% Grass cover, Good, HSG A
16,840	40	Weighted Average
16,625		98.72% Pervious Area
215		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 202A:

Hydrograph



Summary for Pond I-1: North Ex. Units

Inflow Area = 0.348 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-Year Storm event
 Inflow = 1.94 cfs @ 12.07 hrs, Volume= 0.153 af
 Outflow = 0.69 cfs @ 12.31 hrs, Volume= 0.153 af, Atten= 64%, Lag= 14.2 min
 Discarded = 0.09 cfs @ 9.85 hrs, Volume= 0.113 af
 Primary = 0.61 cfs @ 12.31 hrs, Volume= 0.039 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.99' @ 12.31 hrs Surf.Area= 1,838 sf Storage= 2,007 cf
 Flood Elev= 281.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 100.2 min calculated for 0.153 af (100% of inflow)
 Center-of-Mass det. time= 100.2 min (845.8 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25"L x 2.08'H Prisma toid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50"L x 2.08'H Prisma toid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

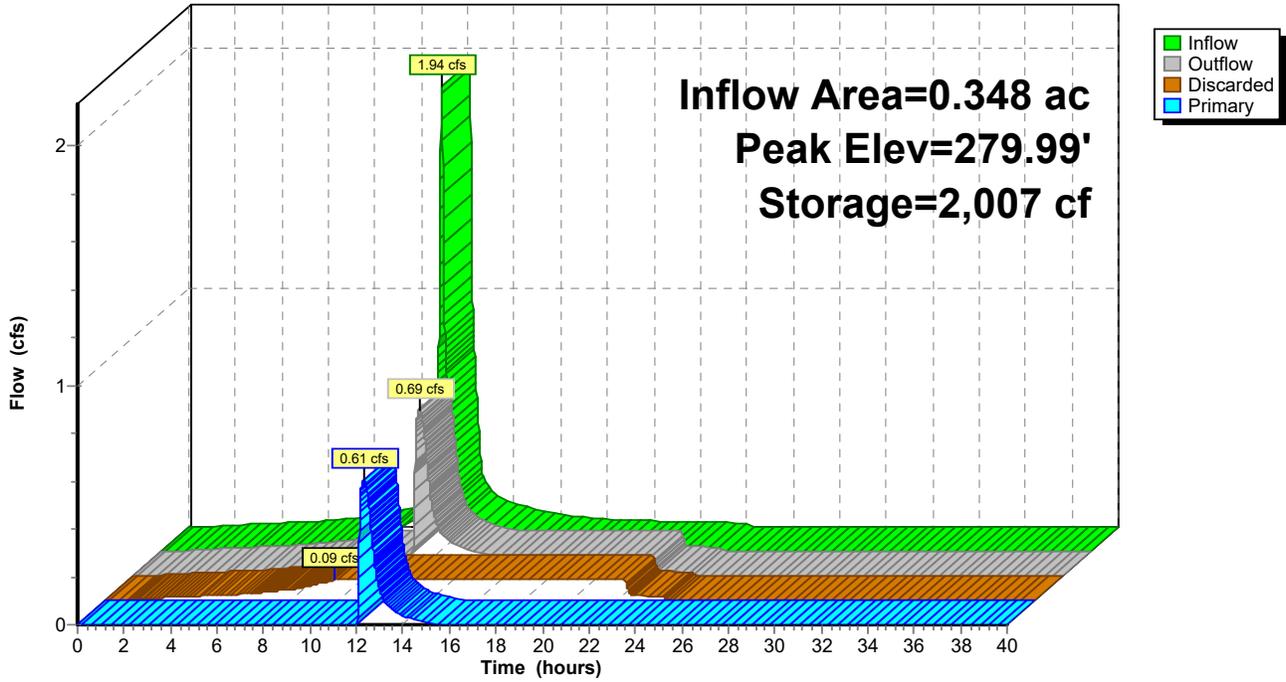
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 9.85 hrs HW=278.04' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.61 cfs @ 12.31 hrs HW=279.99' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 0.61 cfs @ 3.09 fps)
 ↑ **2=6" Manifold** (Passes 0.61 cfs of 3.07 cfs potential flow)

Pond I-1: North Ex. Units

Hydrograph



Summary for Pond I-2: South Ex. Units

Inflow Area = 0.663 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-Year Storm event
 Inflow = 3.70 cfs @ 12.07 hrs, Volume= 0.291 af
 Outflow = 0.57 cfs @ 12.54 hrs, Volume= 0.291 af, Atten= 85%, Lag= 28.0 min
 Discarded = 0.22 cfs @ 10.65 hrs, Volume= 0.260 af
 Primary = 0.35 cfs @ 12.54 hrs, Volume= 0.031 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.55' @ 12.54 hrs Surf.Area= 4,722 sf Storage= 4,531 cf
 Flood Elev= 281.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 121.2 min calculated for 0.291 af (100% of inflow)
 Center-of-Mass det. time= 121.1 min (866.7 - 745.5)

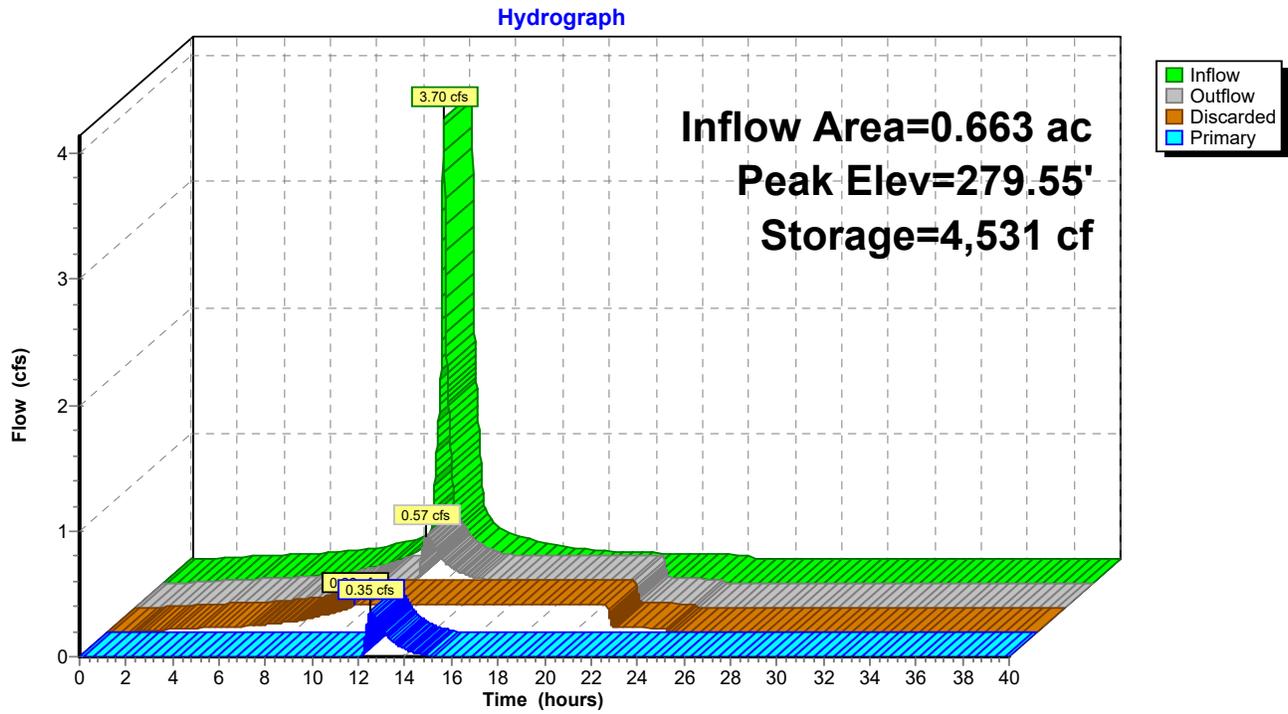
Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prisma toid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prisma toid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 10.65 hrs HW=278.04' (Free Discharge)
 ↑3=Exfiltration (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.35 cfs @ 12.54 hrs HW=279.55' (Free Discharge)
 ↑1=6" PVC (Inlet Controls 0.35 cfs @ 1.85 fps)
 ↑2=6" Manifold (Passes 0.35 cfs of 3.59 cfs potential flow)

Pond I-2: South Ex. Units



Summary for Pond SIG-1: New Storage

Inflow Area = 0.563 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-Year Storm event
 Inflow = 3.14 cfs @ 12.07 hrs, Volume= 0.247 af
 Outflow = 0.31 cfs @ 12.78 hrs, Volume= 0.247 af, Atten= 90%, Lag= 42.4 min
 Discarded = 0.20 cfs @ 10.88 hrs, Volume= 0.236 af
 Primary = 0.11 cfs @ 12.78 hrs, Volume= 0.011 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.72' @ 12.78 hrs Surf.Area= 4,399 sf Storage= 3,973 cf
 Flood Elev= 281.50' Surf.Area= 4,399 sf Storage= 4,948 cf

Plug-Flow detention time= 131.7 min calculated for 0.247 af (100% of inflow)
 Center-of-Mass det. time= 131.7 min (877.2 - 745.5)

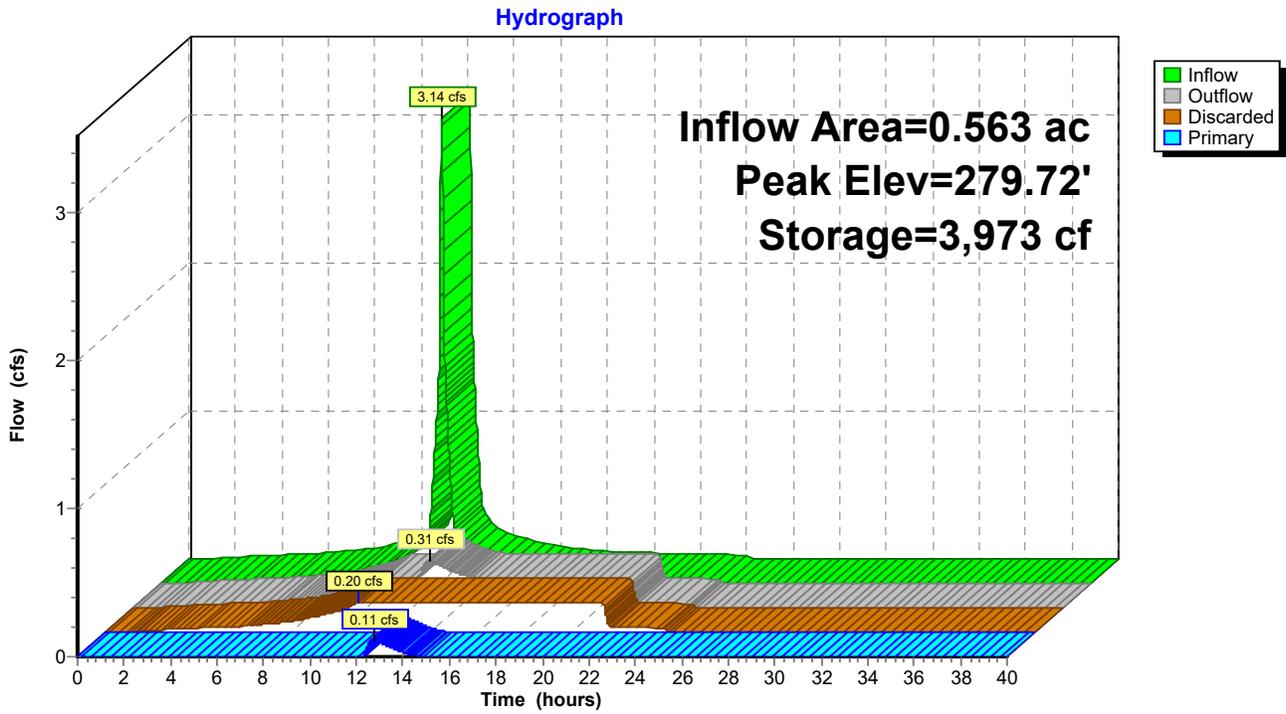
Volume	Invert	Avail.Storage	Storage Description
#1	278.67'	2,683 cf	ADS_StormTech SC-310 +Cap x 182 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 182 Chambers in 7 Rows
#2	278.17'	2,265 cf	23.50"W x 187.20'L x 2.17'H Prismatoid for 7 rows of 26 9,546 cf Overall - 2,683 cf Embedded = 6,863 cf x 33.0% Voids
		4,948 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	279.50'	6.0" Round 6" PVC L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.50' / 278.85' S= 0.0283 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.50'	6.0" Vert. 6" Manifold X 7.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.17'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.20 cfs @ 10.88 hrs HW=278.20' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.11 cfs @ 12.78 hrs HW=279.72' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 0.11 cfs @ 1.27 fps)
 ↑ **2=6" Manifold** (Passes 0.11 cfs of 0.97 cfs potential flow)

Pond SIG-1: New Storage



Summary for Pond TF:

Inflow Area = 2.030 ac, 100.00% Impervious, Inflow Depth = 5.26" for 25-Year Storm event
 Inflow = 11.33 cfs @ 12.07 hrs, Volume= 0.890 af
 Outflow = 4.09 cfs @ 11.88 hrs, Volume= 0.890 af, Atten= 64%, Lag= 0.0 min
 Discarded = 4.09 cfs @ 11.88 hrs, Volume= 0.890 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 280.66' @ 12.30 hrs Surf.Area= 88,424 sf Storage= 4,569 cf
 Flood Elev= 281.50' Surf.Area= 88,424 sf Storage= 29,180 cf

Plug-Flow detention time= 4.9 min calculated for 0.890 af (100% of inflow)
 Center-of-Mass det. time= 4.9 min (750.5 - 745.5)

Volume	Invert	Avail.Storage	Storage Description	
#1	280.50'	29,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	88,424	0.0	0	0
281.00	88,424	33.0	14,590	14,590
281.50	88,424	33.0	14,590	29,180

Device	Routing	Invert	Outlet Devices
#1	Primary	278.00'	12.0" Round Culvert L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 278.00' / 275.00' S= 0.0448 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	281.00'	3.0" Vert. Orifice (panel drains) X 16.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	280.50'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=4.09 cfs @ 11.88 hrs HW=280.51' (Free Discharge)

↑ **3=Exfiltration** (Exfiltration Controls 4.09 cfs)

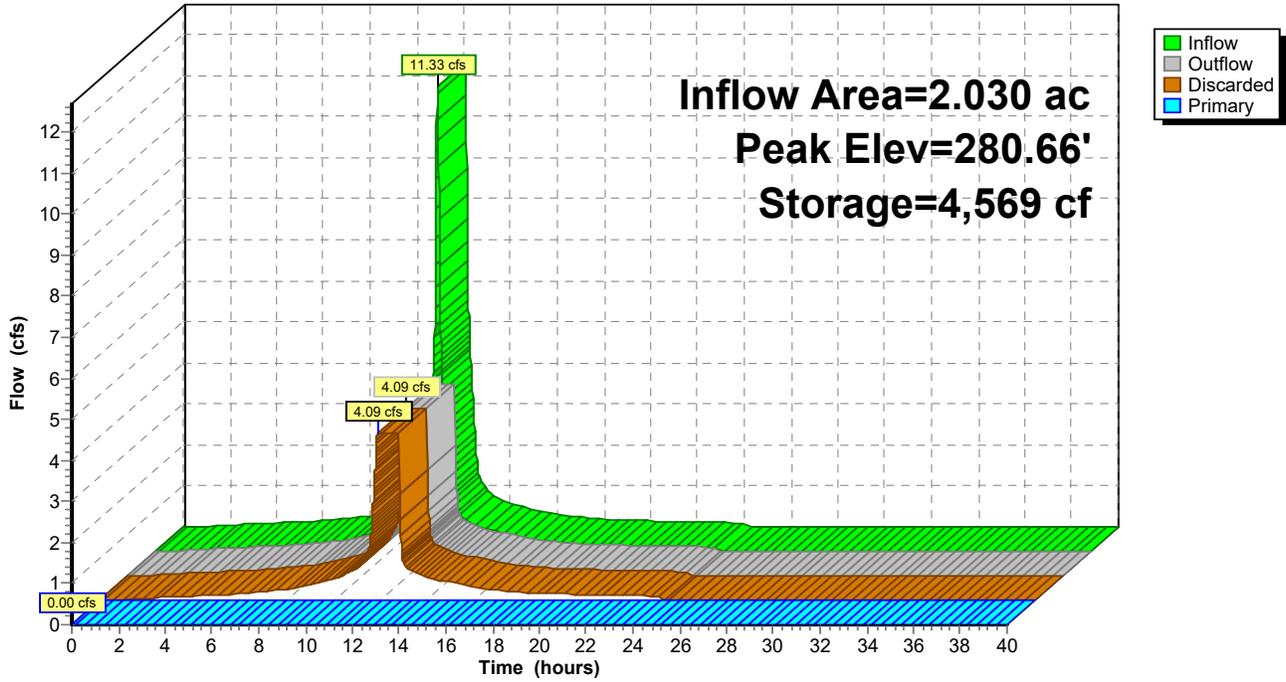
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)

↑ **1=Culvert** (Passes 0.00 cfs of 5.35 cfs potential flow)

↑ **2=Orifice (panel drains)** (Controls 0.00 cfs)

Pond TF:

Hydrograph



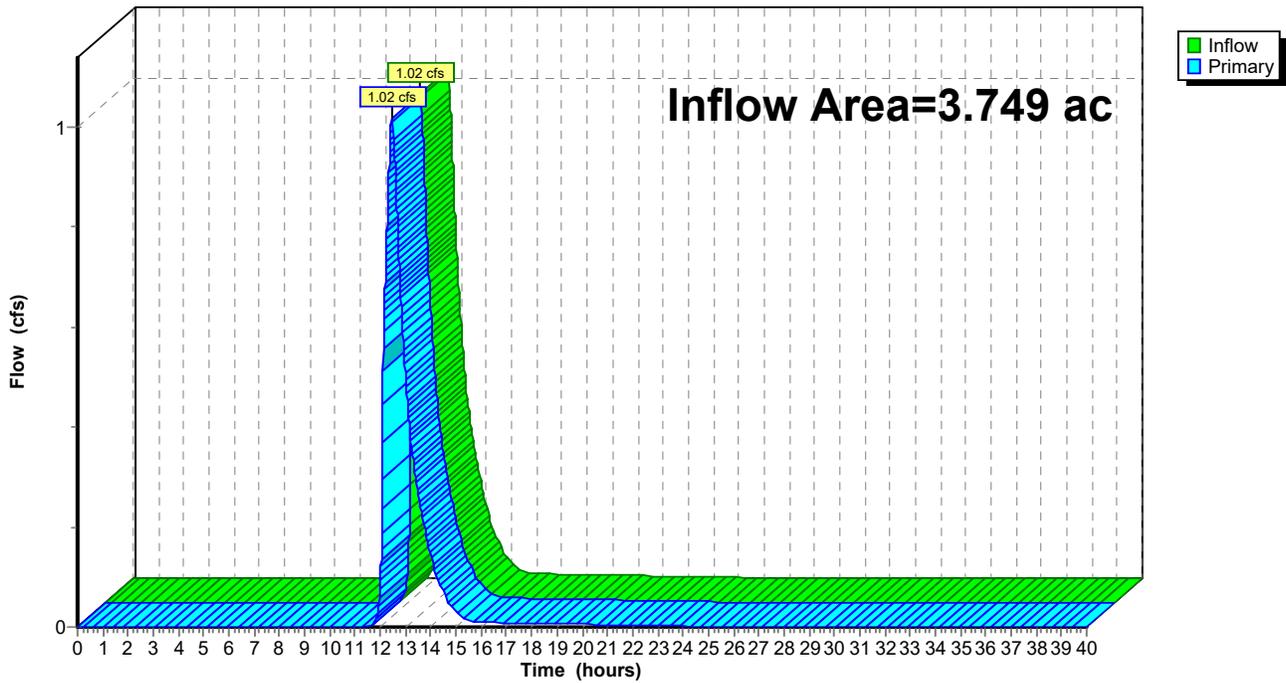
Summary for Link DP-1:

Inflow Area = 3.749 ac, 97.17% Impervious, Inflow Depth = 0.30" for 25-Year Storm event
Inflow = 1.02 cfs @ 12.47 hrs, Volume= 0.095 af
Primary = 1.02 cfs @ 12.47 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



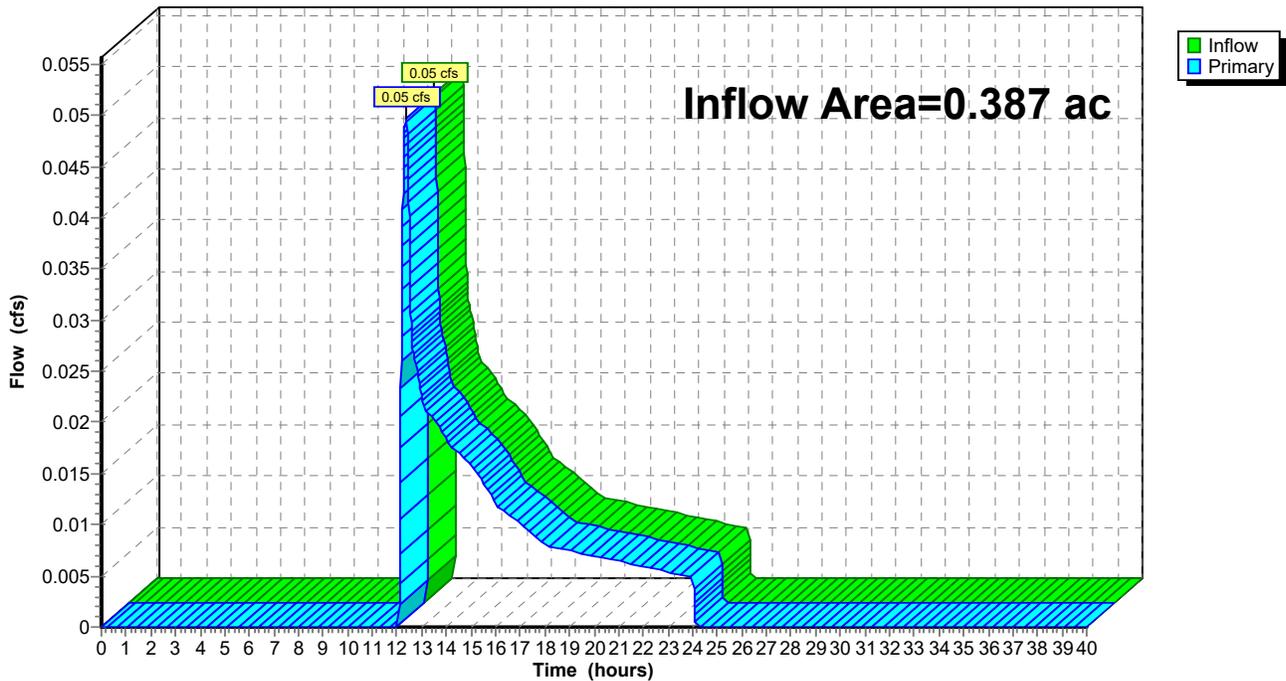
Summary for Link DP-2:

Inflow Area = 0.387 ac, 1.28% Impervious, Inflow Depth = 0.36" for 25-Year Storm event
Inflow = 0.05 cfs @ 12.35 hrs, Volume= 0.012 af
Primary = 0.05 cfs @ 12.35 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph



21263_POST

Prepared by SMRT

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Type III 24-hr 100-Year Storm Rainfall=6.90"

Printed 2/28/2022

Page 57

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment201A: Turf Field Runoff Area=88,424 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=14.23 cfs 1.127 af

Subcatchment201B-1: Runoff Area=15,166 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=2.44 cfs 0.193 af

Subcatchment201B-2: Runoff Area=28,876 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=4.65 cfs 0.368 af

Subcatchment201B-3: Runoff Area=24,513 sf 100.00% Impervious Runoff Depth=6.66"
 Tc=5.0 min CN=98 Runoff=3.95 cfs 0.312 af

Subcatchment201C: Runoff Area=6,349 sf 27.28% Impervious Runoff Depth=1.97"
 Tc=5.0 min CN=54 Runoff=0.32 cfs 0.024 af

Subcatchment202A: Runoff Area=16,840 sf 1.28% Impervious Runoff Depth=0.80"
 Tc=5.0 min CN=40 Runoff=0.20 cfs 0.026 af

Pond I-1: North Ex. Units Peak Elev=303.01' Storage=2,061 cf Inflow=2.44 cfs 0.193 af
 Discarded=0.09 cfs 0.124 af Primary=3.11 cfs 0.069 af Outflow=3.19 cfs 0.193 af

Pond I-2: South Ex. Units Peak Elev=285.87' Storage=5,355 cf Inflow=4.65 cfs 0.368 af
 Discarded=0.22 cfs 0.289 af Primary=1.91 cfs 0.079 af Outflow=2.13 cfs 0.368 af

Pond SIG-1: New Storage Peak Elev=280.24' Storage=4,805 cf Inflow=3.95 cfs 0.312 af
 Discarded=0.20 cfs 0.264 af Primary=0.52 cfs 0.049 af Outflow=0.73 cfs 0.312 af

Pond TF: Peak Elev=280.76' Storage=7,653 cf Inflow=14.23 cfs 1.127 af
 Discarded=4.09 cfs 1.127 af Primary=0.00 cfs 0.000 af Outflow=4.09 cfs 1.127 af

Link DP-1: Inflow=3.43 cfs 0.221 af
 Primary=3.43 cfs 0.221 af

Link DP-2: Inflow=0.20 cfs 0.026 af
 Primary=0.20 cfs 0.026 af

Total Runoff Area = 4.136 ac Runoff Volume = 2.050 af Average Runoff Depth = 5.95"
11.79% Pervious = 0.488 ac 88.21% Impervious = 3.648 ac

Summary for Subcatchment 201A: Turf Field

Runoff = 14.23 cfs @ 12.07 hrs, Volume= 1.127 af, Depth= 6.66"
 Routed to Pond TF :

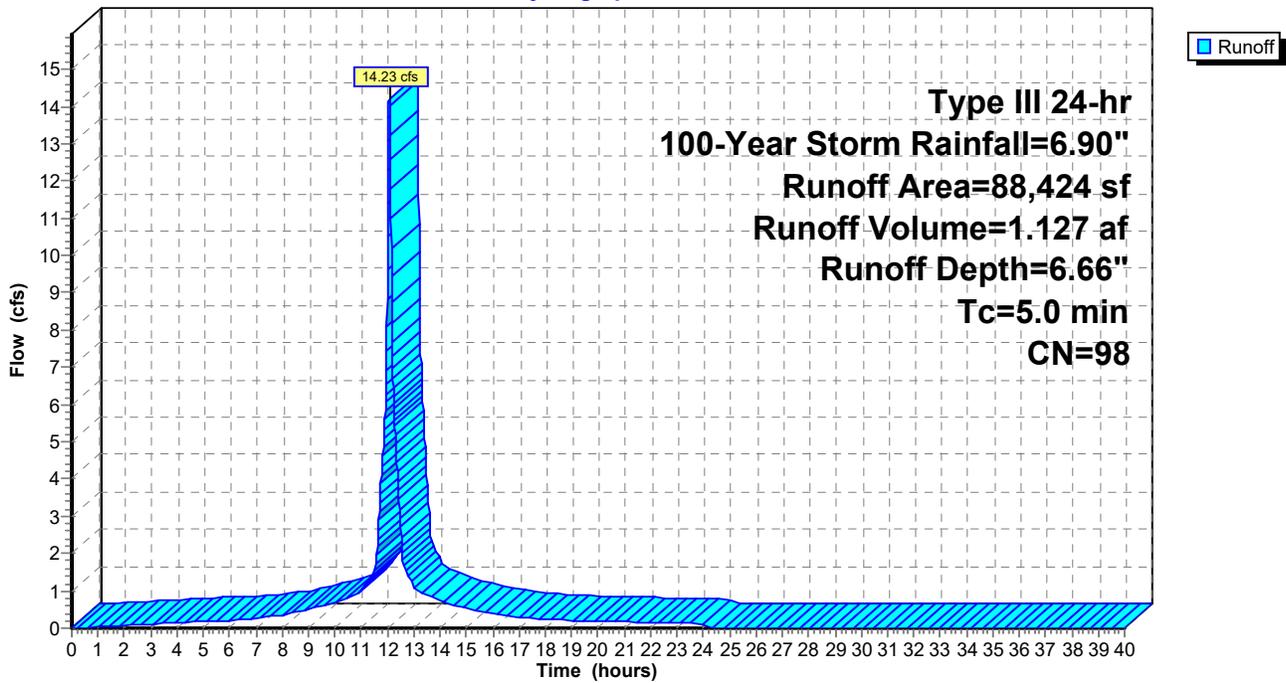
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
* 88,424	98	Turf Field
88,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201A: Turf Field

Hydrograph



Summary for Subcatchment 201B-1:

Runoff = 2.44 cfs @ 12.07 hrs, Volume= 0.193 af, Depth= 6.66"
 Routed to Pond I-1 : North Ex. Units

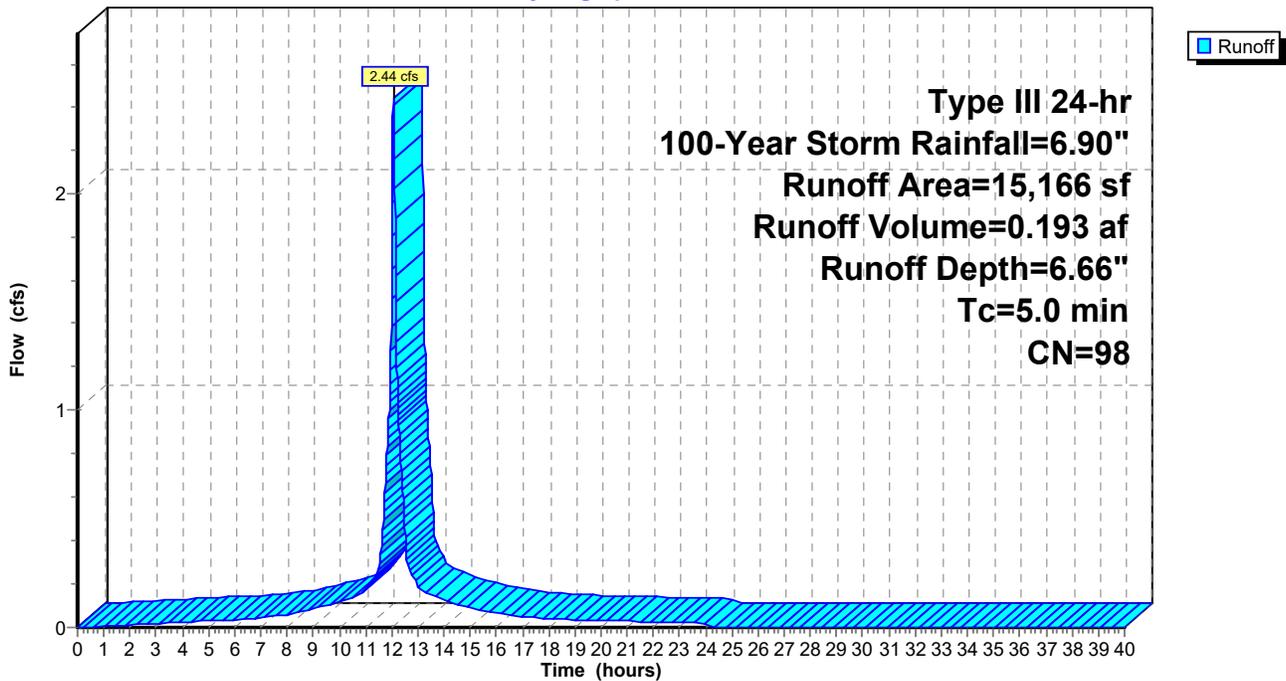
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

	Area (sf)	CN	Description
*	14,234	98	Track
*	932	98	Concrete Sidewalk
	15,166	98	Weighted Average
	15,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-1:

Hydrograph



Summary for Subcatchment 201B-2:

Runoff = 4.65 cfs @ 12.07 hrs, Volume= 0.368 af, Depth= 6.66"
 Routed to Pond I-2 : South Ex. Units

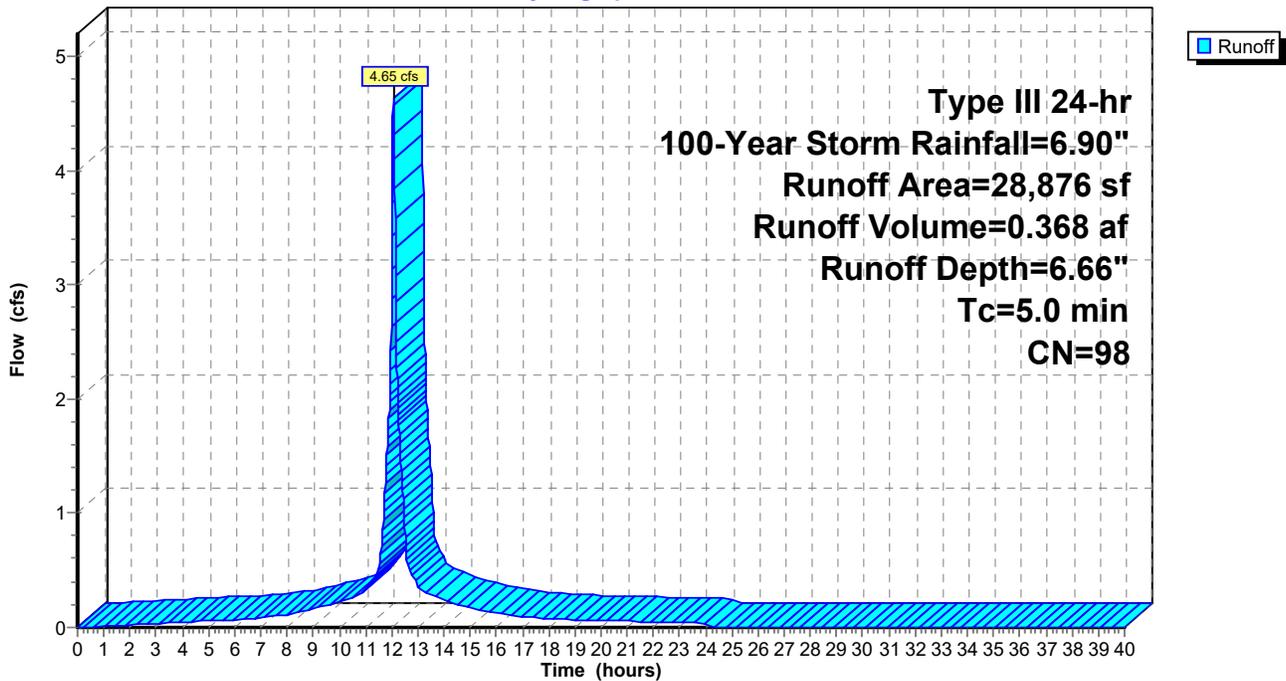
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

	Area (sf)	CN	Description
*	26,786	98	Track
*	2,090	98	Concrete Sidewalk
	28,876	98	Weighted Average
	28,876		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-2:

Hydrograph



Summary for Subcatchment 201B-3:

Runoff = 3.95 cfs @ 12.07 hrs, Volume= 0.312 af, Depth= 6.66"
 Routed to Pond SIG-1 : New Storage

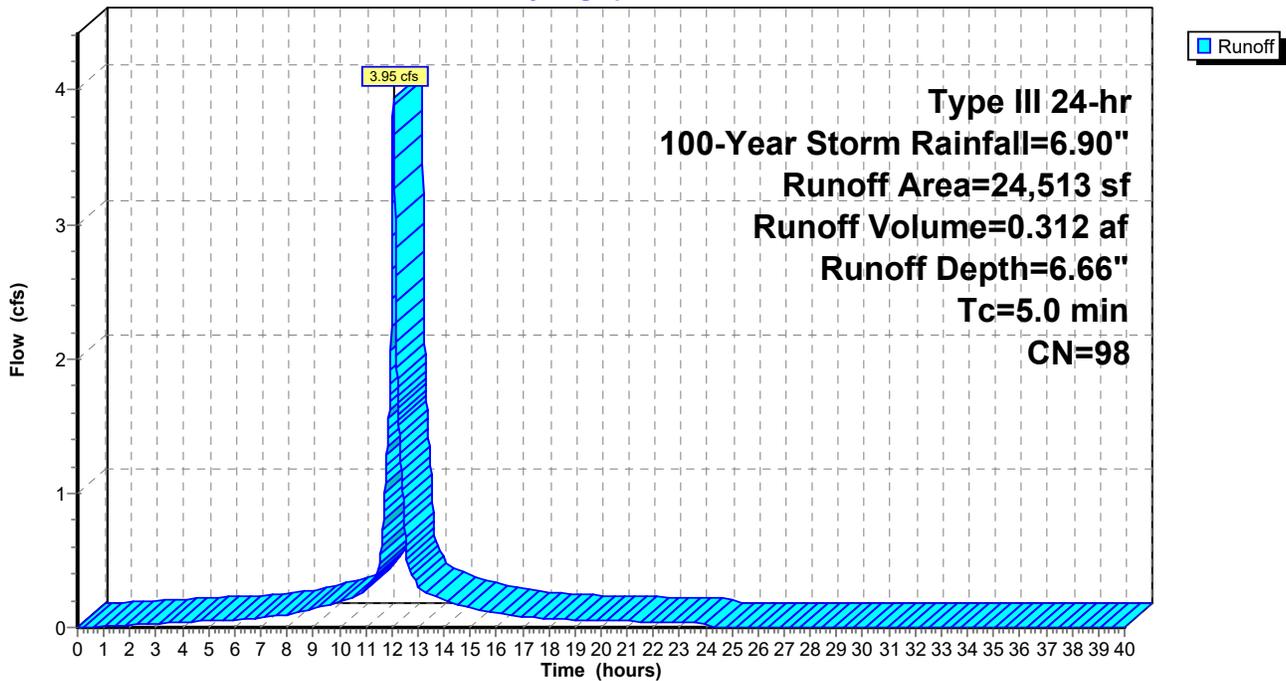
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

	Area (sf)	CN	Description
*	22,884	98	Track
*	1,629	98	Concrete Sidewalk
	24,513	98	Weighted Average
	24,513		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201B-3:

Hydrograph



Summary for Subcatchment 201C:

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 1.97"
 Routed to Link DP-1 :

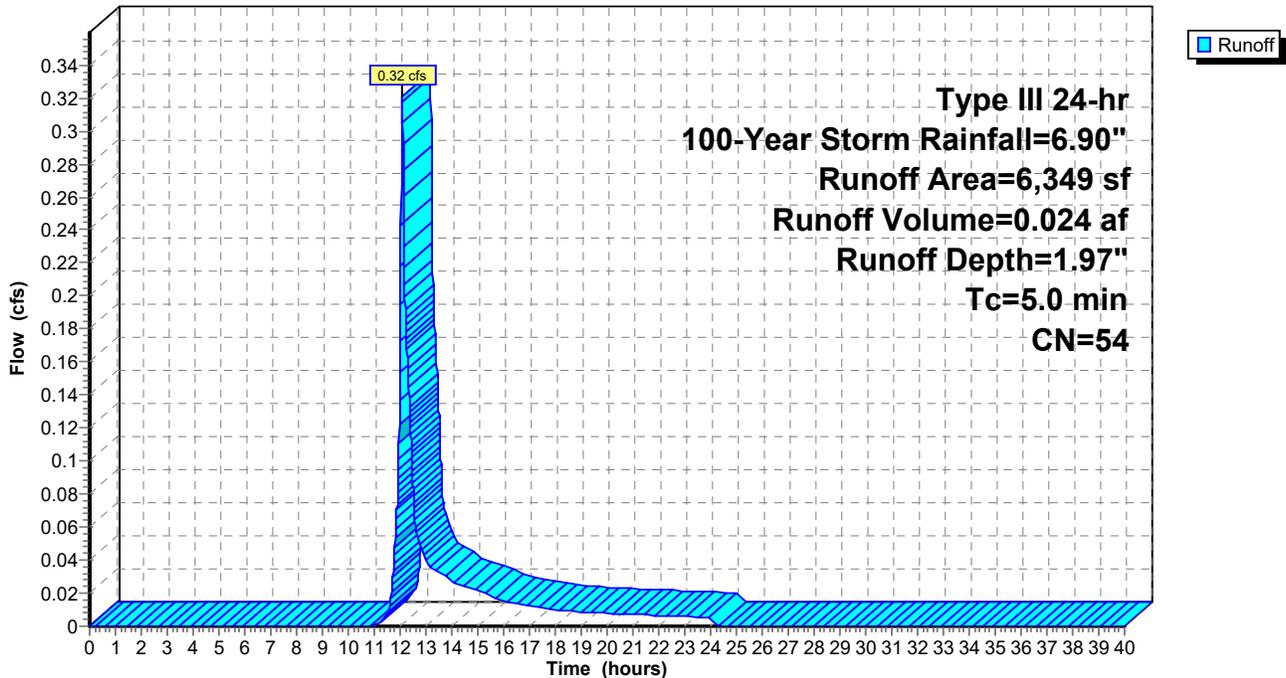
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

	Area (sf)	CN	Description
*	864	98	Roof
*	868	98	Concrete Pavement
	477	30	Woods, Good, HSG A
	4,140	39	>75% Grass cover, Good, HSG A
	6,349	54	Weighted Average
	4,617		72.72% Pervious Area
	1,732		27.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 201C:

Hydrograph



Summary for Subcatchment 202A:

Runoff = 0.20 cfs @ 12.12 hrs, Volume= 0.026 af, Depth= 0.80"
 Routed to Link DP-2 :

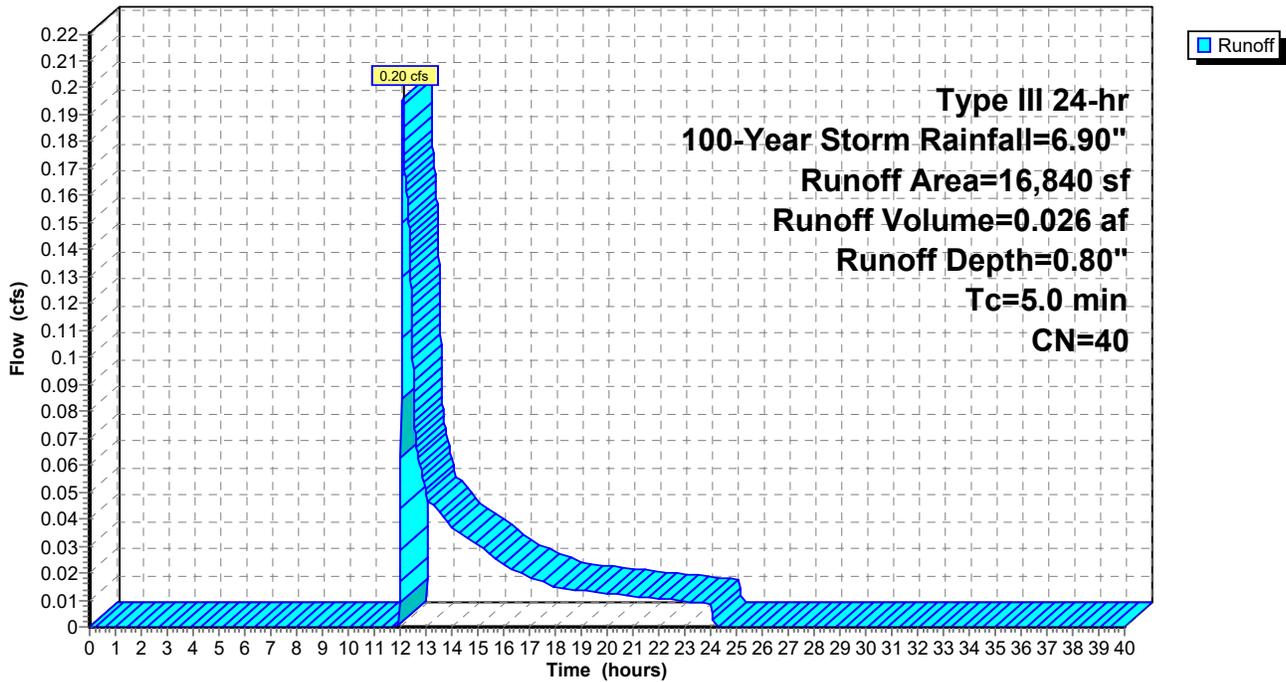
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Storm Rainfall=6.90"

Area (sf)	CN	Description
* 215	98	Filming Tower
16,625	39	>75% Grass cover, Good, HSG A
16,840	40	Weighted Average
16,625		98.72% Pervious Area
215		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Min Tc

Subcatchment 202A:

Hydrograph



Summary for Pond I-1: North Ex. Units

- [93] Warning: Storage range exceeded by 22.93'
- [58] Hint: Peaked 21.51' above defined flood level
- [88] Warning: Qout>Qin may require smaller dt or Finer Routing
- [85] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 0.348 ac, 100.00% Impervious, Inflow Depth = 6.66" for 100-Year Storm event
 Inflow = 2.44 cfs @ 12.07 hrs, Volume= 0.193 af
 Outflow = 3.19 cfs @ 12.08 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.7 min
 Discarded = 0.09 cfs @ 9.25 hrs, Volume= 0.124 af
 Primary = 3.11 cfs @ 12.08 hrs, Volume= 0.069 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 303.01' @ 12.08 hrs Surf.Area= 1,838 sf Storage= 2,061 cf
 Flood Elev= 281.50' Surf.Area= 1,838 sf Storage= 2,061 cf

Plug-Flow detention time= 95.2 min calculated for 0.193 af (100% of inflow)
 Center-of-Mass det. time= 95.2 min (837.4 - 742.2)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	1,106 cf	ADS_StormTech SC-310 +Cap x 75 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 75 Chambers in 3 Rows
#2	278.25'	88 cf	ADS_StormTech SC-310 +Cap x 6 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 6 Chambers in 2 Rows
#3	278.00'	848 cf	11.17"W x 158.25'L x 2.08'H Prismatoid for 3 rows of 25 3,677 cf Overall - 1,106 cf Embedded = 2,571 cf x 33.0% Voids
#4	278.00'	19 cf	4.83"W x 14.50'L x 2.08'H Prismatoid for 2 rows of 3 146 cf Overall - 88 cf Embedded = 57 cf x 33.0% Voids
		2,061 cf	Total Available Storage

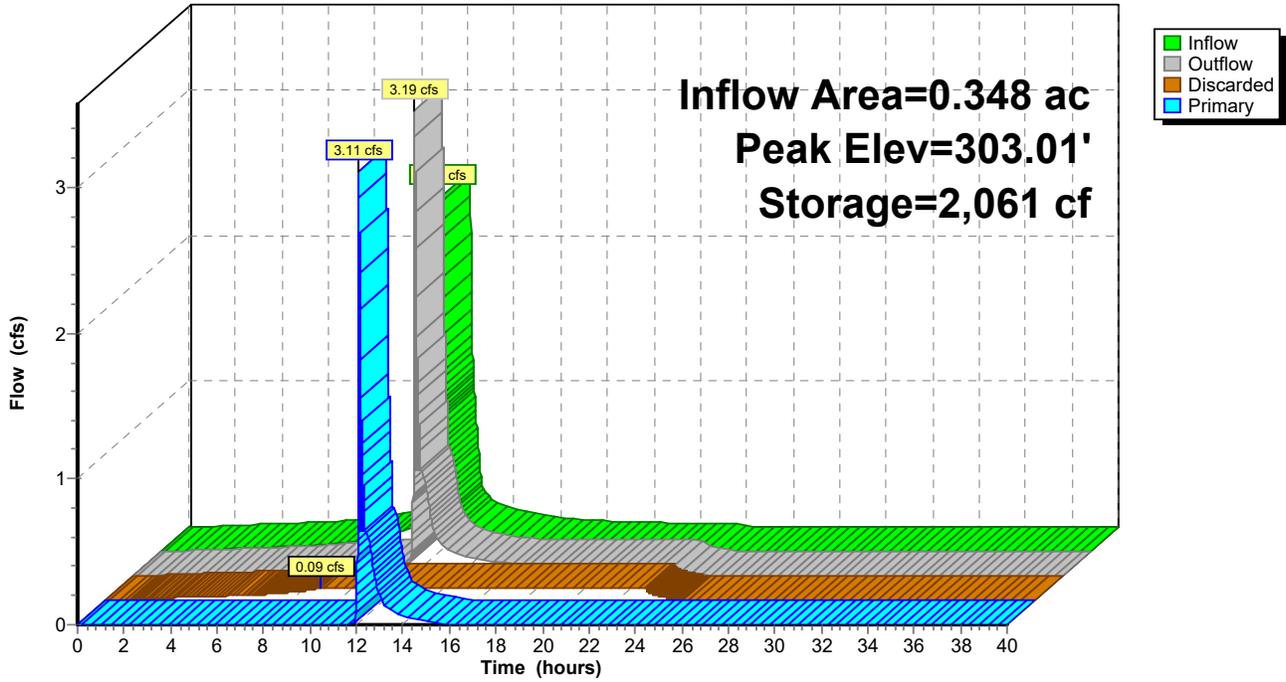
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 113.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0361 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 9.25 hrs HW=278.14' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=2.96 cfs @ 12.08 hrs HW=300.80' (Free Discharge)
 ↑ **1=6" PVC** (Barrel Controls 2.96 cfs @ 15.05 fps)
 ↑ **2=6" Manifold** (Passes 2.96 cfs of 17.52 cfs potential flow)

Pond I-1: North Ex. Units

Hydrograph



Summary for Pond I-2: South Ex. Units

[93] Warning: Storage range exceeded by 5.79'

[58] Hint: Peaked 4.37' above defined flood level

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 0.663 ac, 100.00% Impervious, Inflow Depth = 6.66" for 100-Year Storm event
 Inflow = 4.65 cfs @ 12.07 hrs, Volume= 0.368 af
 Outflow = 2.13 cfs @ 12.31 hrs, Volume= 0.368 af, Atten= 54%, Lag= 14.4 min
 Discarded = 0.22 cfs @ 10.15 hrs, Volume= 0.289 af
 Primary = 1.91 cfs @ 12.31 hrs, Volume= 0.079 af
 Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 285.87' @ 12.31 hrs Surf.Area= 4,722 sf Storage= 5,355 cf
 Flood Elev= 281.50' Surf.Area= 4,722 sf Storage= 5,355 cf

Plug-Flow detention time= 114.6 min calculated for 0.368 af (100% of inflow)
 Center-of-Mass det. time= 114.6 min (856.8 - 742.2)

Volume	Invert	Avail.Storage	Storage Description
#1	278.25'	2,388 cf	ADS_StormTech SC-310 +Cap x 162 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 162 Chambers in 6 Rows
#2	278.25'	767 cf	ADS_StormTech SC-310 +Cap x 52 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 52 Chambers in 4 Rows
#3	278.00'	1,634 cf	20.67"W x 170.75'L x 2.08'H Prismatoid for 6 rows of 27 7,341 cf Overall - 2,388 cf Embedded = 4,953 cf x 33.0% Voids
#4	278.00'	566 cf	14.33"W x 83.25'L x 2.08'H Prismatoid for 4 rows of 13 2,481 cf Overall - 767 cf Embedded = 1,715 cf x 33.0% Voids
		5,355 cf	Total Available Storage

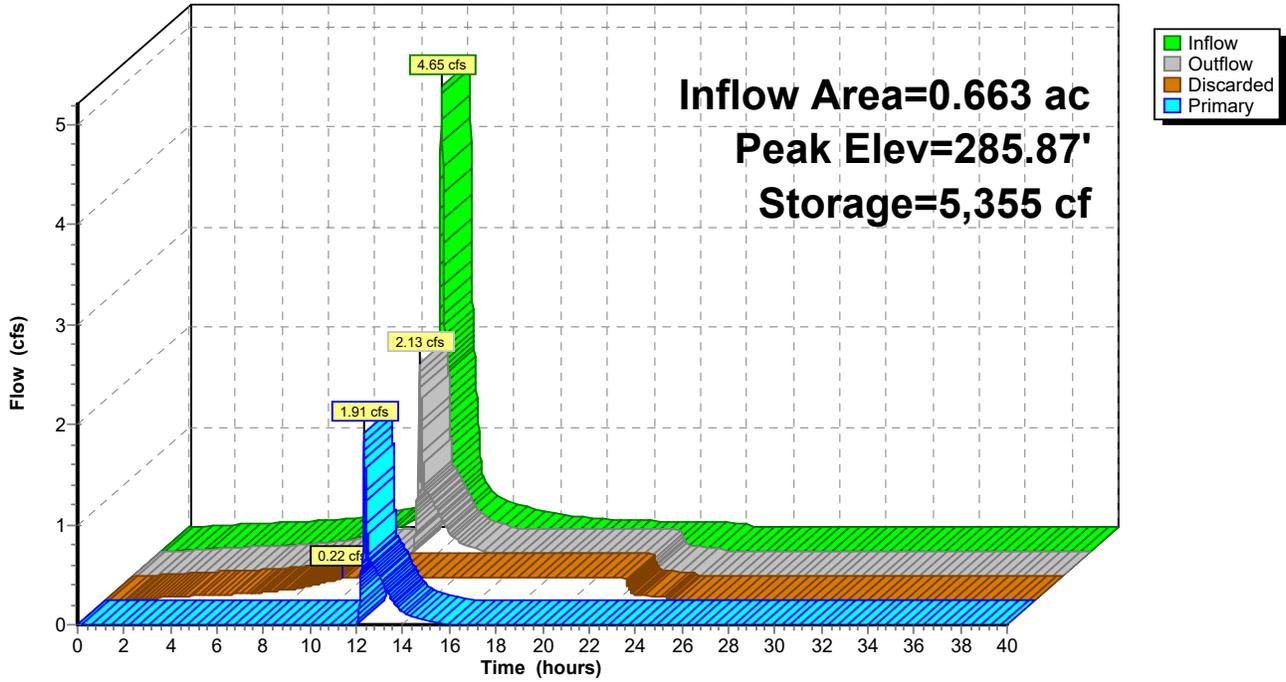
Device	Routing	Invert	Outlet Devices
#1	Primary	279.08'	6.0" Round 6" PVC L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.08' / 275.00' S= 0.0544 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.08'	6.0" Vert. 6" Manifold X 8.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.00'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.22 cfs @ 10.15 hrs HW=278.07' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=1.89 cfs @ 12.31 hrs HW=285.76' (Free Discharge)
 ↑ **1=6" PVC** (Inlet Controls 1.89 cfs @ 9.64 fps)
 ↑ **2=6" Manifold** (Passes 1.89 cfs of 19.18 cfs potential flow)

Pond I-2: South Ex. Units

Hydrograph



Summary for Pond SIG-1: New Storage

Inflow Area = 0.563 ac, 100.00% Impervious, Inflow Depth = 6.66" for 100-Year Storm event
 Inflow = 3.95 cfs @ 12.07 hrs, Volume= 0.312 af
 Outflow = 0.73 cfs @ 12.50 hrs, Volume= 0.312 af, Atten= 82%, Lag= 25.9 min
 Discarded = 0.20 cfs @ 10.31 hrs, Volume= 0.264 af
 Primary = 0.52 cfs @ 12.50 hrs, Volume= 0.049 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 280.24' @ 12.50 hrs Surf.Area= 4,399 sf Storage= 4,805 cf
 Flood Elev= 281.50' Surf.Area= 4,399 sf Storage= 4,948 cf

Plug-Flow detention time= 124.0 min calculated for 0.312 af (100% of inflow)
 Center-of-Mass det. time= 124.0 min (866.2 - 742.2)

Volume	Invert	Avail.Storage	Storage Description
#1	278.67'	2,683 cf	ADS_StormTech SC-310 +Cap x 182 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 182 Chambers in 7 Rows
#2	278.17'	2,265 cf	23.50"W x 187.20'L x 2.17'H Prisma toid for 7 rows of 26 9,546 cf Overall - 2,683 cf Embedded = 6,863 cf x 33.0% Voids
		4,948 cf	Total Available Storage

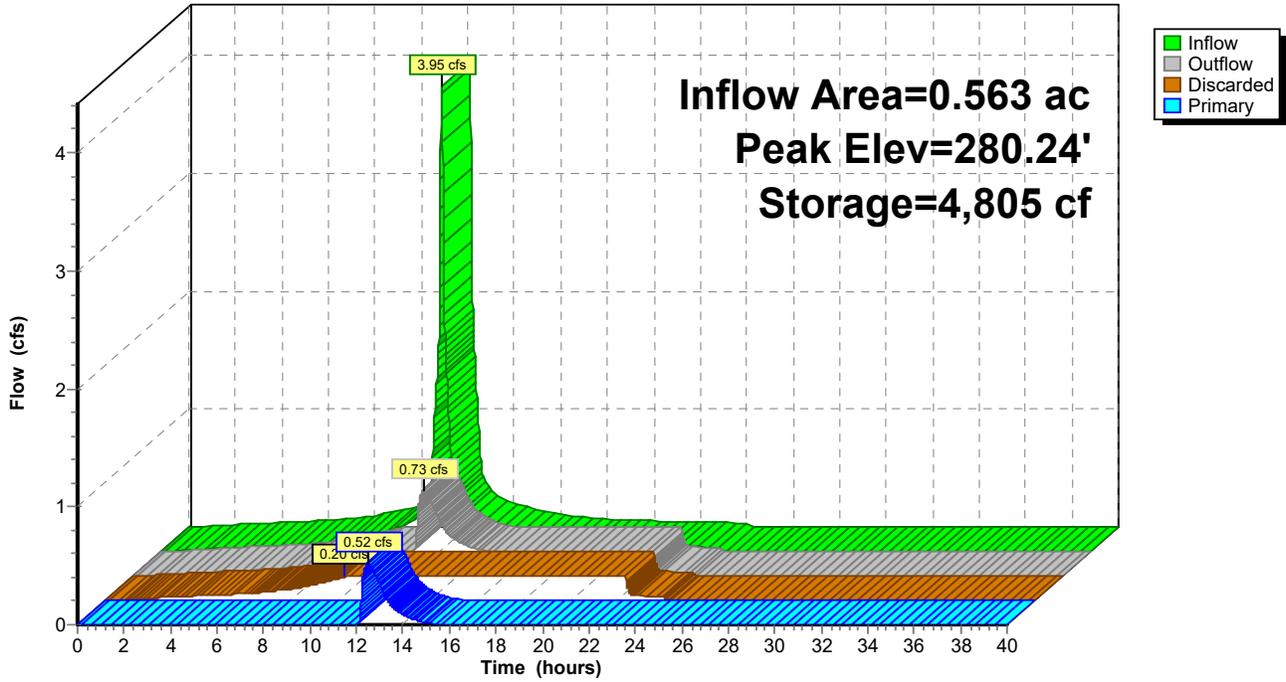
Device	Routing	Invert	Outlet Devices
#1	Primary	279.50'	6.0" Round 6" PVC L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 279.50' / 278.85' S= 0.0283 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	279.50'	6.0" Vert. 6" Manifold X 7.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	278.17'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.20 cfs @ 10.31 hrs HW=278.20' (Free Discharge)
 ↑**3=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.52 cfs @ 12.50 hrs HW=280.24' (Free Discharge)
 ↑**1=6" PVC** (Inlet Controls 0.52 cfs @ 2.66 fps)
 ↑**2=6" Manifold** (Passes 0.52 cfs of 4.64 cfs potential flow)

Pond SIG-1: New Storage

Hydrograph



Summary for Pond TF:

Inflow Area = 2.030 ac, 100.00% Impervious, Inflow Depth = 6.66" for 100-Year Storm event
 Inflow = 14.23 cfs @ 12.07 hrs, Volume= 1.127 af
 Outflow = 4.09 cfs @ 11.80 hrs, Volume= 1.127 af, Atten= 71%, Lag= 0.0 min
 Discarded = 4.09 cfs @ 11.80 hrs, Volume= 1.127 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Peak Elev= 280.76' @ 12.38 hrs Surf.Area= 88,424 sf Storage= 7,653 cf
 Flood Elev= 281.50' Surf.Area= 88,424 sf Storage= 29,180 cf

Plug-Flow detention time= 8.3 min calculated for 1.127 af (100% of inflow)
 Center-of-Mass det. time= 8.3 min (750.5 - 742.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	280.50'	29,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	88,424	0.0	0	0
281.00	88,424	33.0	14,590	14,590
281.50	88,424	33.0	14,590	29,180

Device	Routing	Invert	Outlet Devices
#1	Primary	278.00'	12.0" Round Culvert L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 278.00' / 275.00' S= 0.0448 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	281.00'	3.0" Vert. Orifice (panel drains) X 16.00 C= 0.600 Limited to weir flow at low heads
#3	Discarded	280.50'	2.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=4.09 cfs @ 11.80 hrs HW=280.51' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 4.09 cfs)

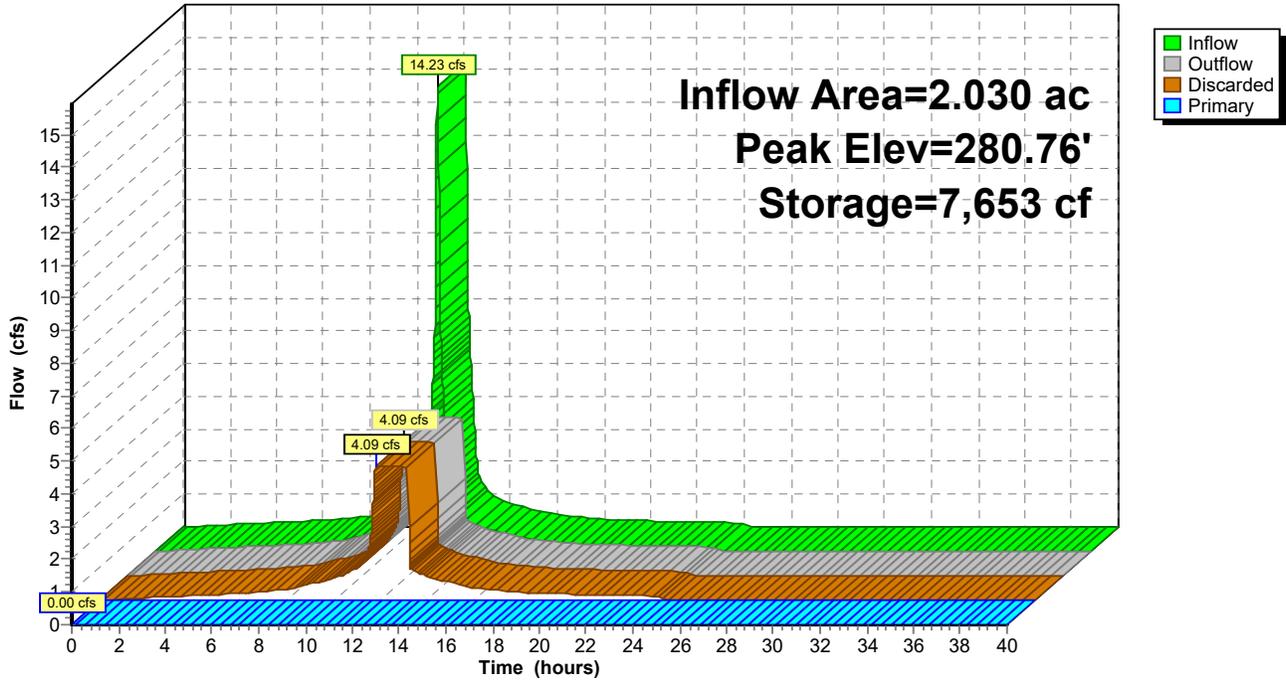
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)

↑**1=Culvert** (Passes 0.00 cfs of 5.35 cfs potential flow)

↑**2=Orifice (panel drains)** (Controls 0.00 cfs)

Pond TF:

Hydrograph



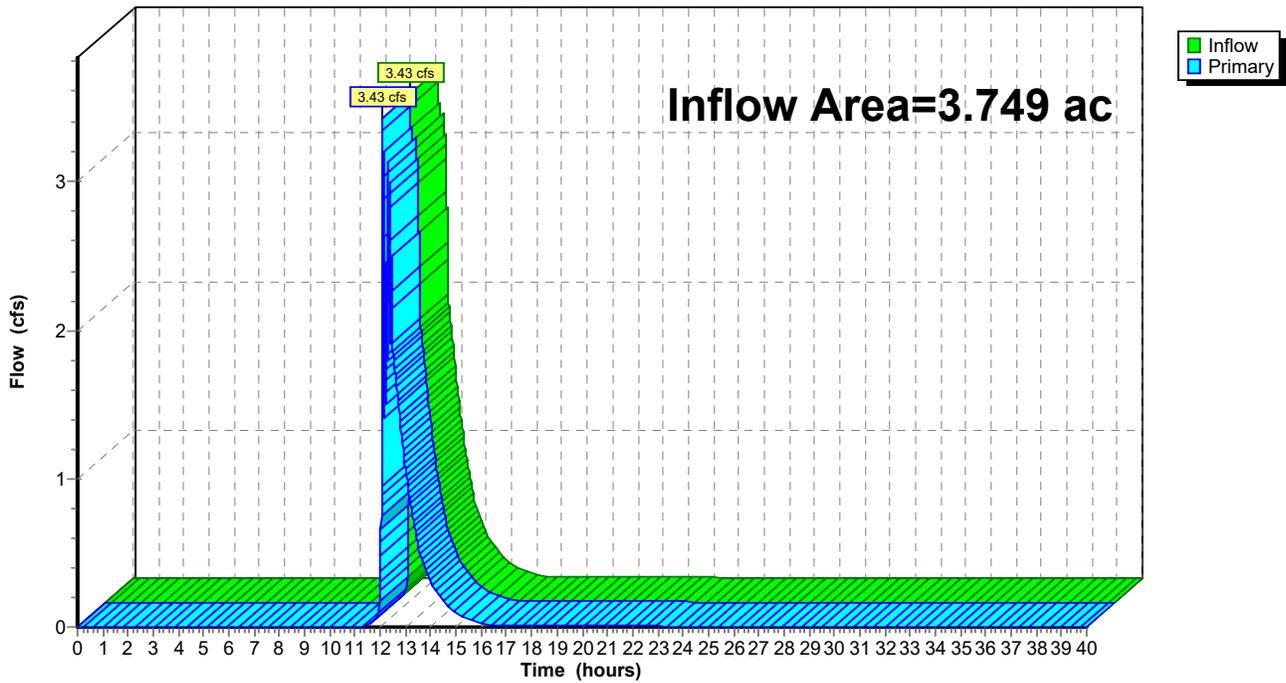
Summary for Link DP-1:

Inflow Area = 3.749 ac, 97.17% Impervious, Inflow Depth = 0.71" for 100-Year Storm event
Inflow = 3.43 cfs @ 12.08 hrs, Volume= 0.221 af
Primary = 3.43 cfs @ 12.08 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-1:

Hydrograph



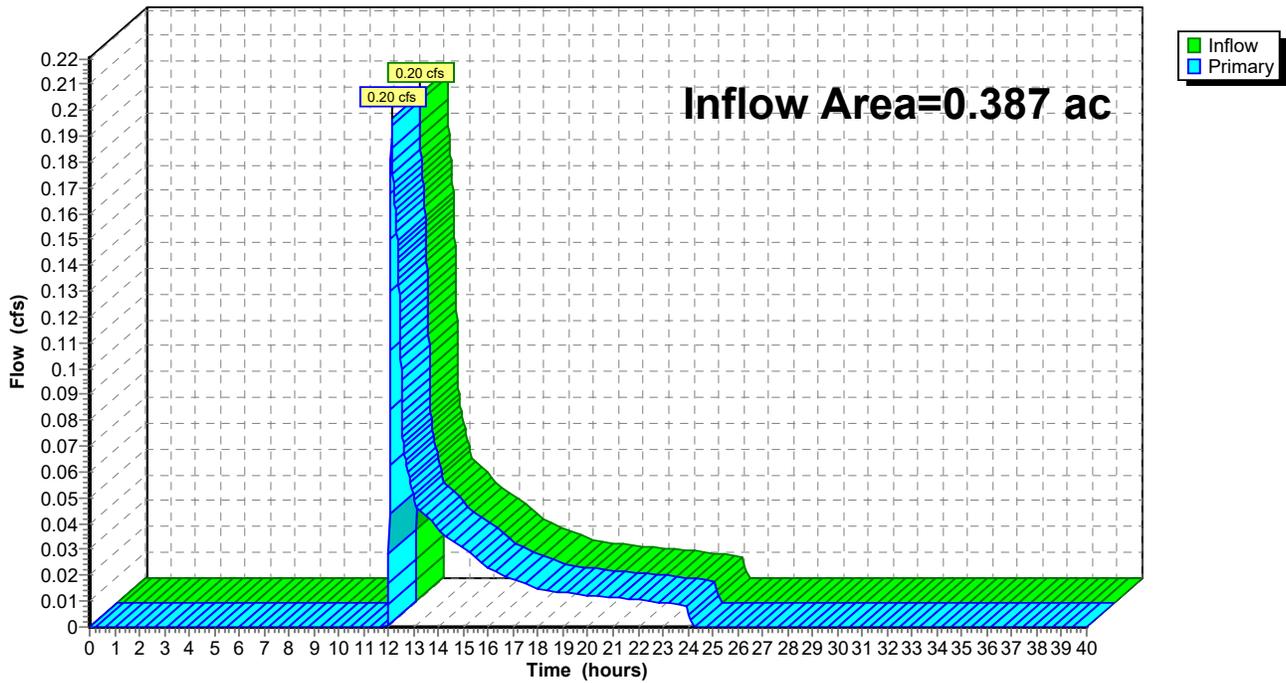
Summary for Link DP-2:

Inflow Area = 0.387 ac, 1.28% Impervious, Inflow Depth = 0.80" for 100-Year Storm event
Inflow = 0.20 cfs @ 12.12 hrs, Volume= 0.026 af
Primary = 0.20 cfs @ 12.12 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Link DP-2:

Hydrograph





STORMWATER FACILITIES OPERATION, INSPECTION AND MAINTENANCE PLAN

Westminster School- Track & Field Renovations Simsbury, Connecticut

During construction activities, the maintenance of all stormwater measures will be the direct responsibility of the Contractor undertaking the work. All work shall conform to the terms and conditions of all relevant local, State and/or Federal permits. After acceptance by the Owner, the maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of Westminster School. Notwithstanding any other schedule noted below, general inspections should be conducted by facilities staff monthly during wet weather conditions from March to November.

Drainage Pipes and Culverts

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means. However, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the bioretention area (in the main entrance parking lot) as this will reduce the ponds capacity and ability to filter/infiltrate runoff, and will hasten the time when the pond must be cleaned/rehabilitated.

Inlet and Outlet Grates

Inlet and outlet grates are intended to trap and control floatables and debris within the stormwater system. The grates should be inspected on a quarterly basis, and after large storm events for build up of debris and other potentially detrimental material. Periodic maintenance of these features will be required to keep grates clear and prevent damage to either the grate itself or the attached structure.

Yard Drains / Dry Wells

Inspect drainage structures at least four times a year, and at the end of foliage and snow removal seasons. Remove sediments from catch basin at least four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin. (Removal of sediments shall occur a minimum of once per year). Clean out must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil-absorptive pads).

Subsurface Infiltration Gallery

Owner shall follow the manufacturer's recommended schedule for inspection and maintenance of the infiltration chamber units.



Track Trench Drain

Owner shall inspect the trench drain at least twice per the spring and fall seasons. Inline catch basin track racks should be inspected and debris removed and disposed in a legal manner

Synthetic Turf Field & Track

Owner shall follow the manufacturer’s recommended schedule for inspection and maintenance of the infiltration chamber units.

Owner:	Party responsible for Operations and Management:
Owners Name: _____	Name: _____
Owners Signature: _____	Address: _____
Date: _____	_____
	Phone: _____

The Town of Simsbury reserves the right to inspect the stormwater management system at reasonable times and in a reasonable manner.



**STORMWATER FACILITIES
OPERATION, INSPECTION AND MAINTENANCE INSPECTION REPORT**

GENERAL Project: Westminster School – Track & Field Renovation
Simsbury, Connecticut

Inspector: _____ Qualifications: _____

Date/Time: _____

Inspection Type: Annual/Biannual/_____

Storm Event-Storm start date & rainfall (inches): _____

Weather conditions (at time of inspection): _____

General Observations: _____

Outstanding Issues from Previous Report: _____

BMP's	Functional?	Condition?	Notes
Drainage Pipes and Culverts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	
Inlet and Outlet Grates:	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	
Yard Drains / Drywells:	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	
Subsurface Infiltration Gallery:	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	
Track Trench Drain:	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	
Other:			



HOUSEKEEPING

Observed? Condition? Notes

Contaminants/Chemicals: Yes No _____

Dumpster(s)/Litter Control: Yes No _____

Sanitary Facilities: Yes No _____

Vehicle Maintenance: Yes No _____

Other:

CORRECTIVE ACTIONS, FOLLOW UP, SCHEDULE, RESPONSIBLE PARTIES AND GENERAL NOTES

Inspector's Name and Signature: _____